

Preserve

App. F IX-4

Previous References

Ml 74-35- Sl 5, 6, 8, 11

✓
1937.
(Ml)

File No. 125-37

Serial Nos. 1, 2, 6, 7

Letter References

✓
Ml 150-38 Sl 41 & 42
Ml 157-38 Sl 1, 2, 37

GENERAL AND REVENUE SECRETARIAT.

Serial Nos. Four

Part B for Oct 38

SUBJECT.

Improvement of Water Supply, to Chikmagalur Town.

To the B P H. S.
No L 3025

D 15-10-38

WD 225-222-22, 223-12-37

States that in all Engineering Matters, the Sanitary Engineer should work under the guidance and orders of the Chief Engineer. Etc

Re. Water supply Scheme - Chikmagalur

General and Revenue
Secretariat

File No. 125-

4442
2

of 193

[App F III-2

Serial
No

1

Letter No AB 457/37-38 Dated 17th March 1938
from the D & Kadur Dt, reporting that
Certain Councillors of the Chikmagalur town
M C leave to wait upon the Second Member
of Council, to discuss matters connected
with the Water supply scheme to Chikmag-
alur and requesting necessary orders in
the matter.

1) The request of the H.A. to visit
in deputation on the Second Member of
Council in this connection is for orders

for
18/3/38

2) Levy L.S. 9)

Shl.

Shl.

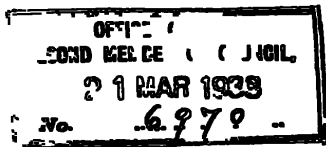
18-3-38

Shl.

11 members)

3) The papers may be circulated to
the Chief Engineer and Director of Health
for favour of receiving their views.

4) The Dy Comm may be informed
that the matter is being examined by
the Technical Dept concerned and
no objection will be served by the
Municipal Councillors regarding the same.



✓ Deputation — Chikmagalur water supply scheme
 1
 File No. 4442 of 1937
 General and Revenue
 Secretariat

the matter with me at this stage

recd
 22/3/38

5) plan put up for report to DC

for
 him

25/3

6) A draft letter to the S & C Roadward is
 put up for app'l

D.S.N.

2/5/38

24/3/38 for Levy (15)

for him

7) Ample provision for supply of

for
 him

25-3-38

for him

Forwarded No. L7994 Mel 125-37-2 Dated

28/3/1938

Forwarded with compliments to Mr. Officially
 to the Chief Engineer for favour of furnishing
 his views in the matter

Re O No 174

Dy 29-3-1938

To O

Mr. Laper Lunn

for secy to Govt w/o

D.S.N. d s & dep't

28/3/38

9/2 R.W.C

Ample provision for supply of

Secy L.S.G.

29-3-38

PUBLIC WORKS
SECRETARIAT

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No

Returned, with compliments

10

2. It is hardly dignified for the Chief Engineer to enter into a controversy of this kind with a member of his own department and who has to look to the Chief Engineer for guidance, simply -- because the officer happens, for the time being, to be under the control of another department. This being however, unavoidable in the present ~~circumstances~~, I give my further remarks opposite the remarks of the Sanitary Engineer and the Director of Public Health.

11

3. I find that the Sanitary Engineer has -- still much to learn from experience, and he needs -- guidance. As I have said, Chickmagalur is ideally suited for a sound gravitation scheme. The water available is a natural upland surface water, uncontaminated chemically and bacteriologically, as I saw from an analysis shown to me by the Municipality. The following table shows how pure the water is:-

Chemical analysis.-

	Limits as per Board of Pub- lic Health.	Raw water 2-3-38.	Filtered water 2-3-1938	Filtered water 24-10-37.	Remarks.
Total solids.	20	45	25	16	
Chlorides.	Depends upon locality.	1.6	1	2	
Free Ammonia	0.006	0.016	Nil.	0.01	
Albuminoid Ammonia.	Less than .015	0.032	0.005 (VERY GOOD)	0.014	.004 to .005 is good water.

U

PUBLIC WORKS
SECRETARIAT

File No.

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Serial
No

- 2 -

Total hardness	5 to 10 degrees denotes soft.	9.6	9	4.7	Below 5 indicates very soft.
Permanent hardness.	--	7	6.5	3.5	
Temporary hardness	--	2.6	2.5	1.2	
PH Value.	7 is neutral ≤ 7 is acid > 7 is alkaline	7.2	7.3	7.3	
Nitrites.	Nil.	Nil.	Nil.	Nil.	
Nitrates.	0.3	Nil.	Nil.	Nil.	
Oxygen absorbed in 2 hours.	0.1 to 0.2 (for 3 hours)	0.4	0.32	0.15	
Poisonous metals	Nil.	Nil.	Nil.	Nil.	

Bacteriological analysis.

Place and description.	Date and hour of col-lection.	Date and hour of ino-cula-tion.	Total colo-nies per 1 c.c.	Lactose Fermenters.									
				<u>1</u>	<u>1</u>	1	5	10 c.c.					
				100	10	c.c.	c.c.	1	2	3	4	5	
<u>Hirekolale Settling tank.</u>				(Not examined)									
1. Raw water as it enters the filters.	5-11-1937.	5-11-1937.	.	-	-	-	-	-	+	-	+	+	
2. Filtered water.	"	"		-	-	-	-	-	-	+	-	-	
3. Raw water as it enters the filters.	15-3-1938.	15-3-1938.	.	-	-	+	+	+	+	+	+	+	
4. Filtered -do-	"	"	..						-	-	-	-	
5. Raw water as it enters the filters.	20-4-1938.	20-4-1938		-	-	+	+	+	+	+	+	+	
6. Filtered water "	"	"	..	-	-	-	-	+	-	-	-	+	

**PUBLIC WORKS
SECRETARIAT**

File No _____ of 193 _____

Serial
No

- 3 -

1st) It is very important to know the quality of the water just at the beginning of the rainy season, for the proper design of water purification works. Because at that time the water is likely to be most contaminated. I had expected that a series of systematic examinations spread over a period of 12 months of six seasons had been conducted. But obviously nothing of that kind has been done. Vague conclusions and discussions are going on. The water would be turbid in the rainy season, and it is easy to clear it by settlement with alum and finally chlorinating the clear top water before it is let in for distribution. The estimates made by me have been inflated by the Sanitary Engineer, while his have been deflated. I think a satisfactory gravitation scheme could be carried out at a cost, in the neighbourhood of ^{say,} Rs 1,10,000/- with the maintenance cost of about Rs 3,000 to 4,000 per year. This excludes the cost of cleaning and setting right

Serial
No.

- 4 -

of the town distribution system, which may cost another 20 to 25 thousand rupees common to both schemes. The Sanitary Engineer's estimate of the pumping scheme -- would ultimately cost very much more than his deflated estimate of Rs.68,000/- as standbys and other items have to be provided for in the course of a few years. Ultimately, the pumping scheme may land us to the -- expenditure of a lakh and a quarter, with a maintenance cost of about 9 to 10 thousand rupees per annum. We have experience of various pumping stations. Machinery, even the very best, ^{is} ~~are~~ liable to periodical and sudden break-downs. We have used in Mysore, some of the finest and highest quality machinery in the world, in the case of various water supply schemes, such as, Chamaraj Sagar, Mysore, Tiptur, Belagola, Mudigere, -- etc.,. Either the pumps get out of order, or the -- motors burn out and so on. When we get into such -- difficulties, we frantically write letters, air mail, phone, telegraph and cable for spare parts. While -- they arrive, the water supply is held up for the town, and the people suffer, simply because the officers concerned cannot or will not take a long view of things. The pumping ^{scheme} ~~is~~ is too dear even at the deflated estimate of Rs.68,000/-.

13) I consider the Government will be well advised to adopt the gravitation scheme in the conditions of Chickmagalur, situated as it is ideally for a natural gravitation scheme, with plenty of good water available. It is only in cases in which gravitation --

PUBLIC WORKS
SECRETARIAT

File No _____ of 193 _____

Serial
No

- 5 -

facilities are not available, we have perforce to adopt the other alternative.

14) If the gravitation scheme is finally approved, it would, for obvious reasons, be necessary ^{to} entrust ~~the~~ the framing of the project, executing the same, and maintaining also, to the local P. W. D. Executive Engineer at Kadur. Mr. C. Rangaswamy Iyengar has an intimate knowledge and a correct grasp of the local conditions, as can be seen from a perusal of his -- exhaustive report attached to this note. He is in intimate contact with the Municipality and will be in a position to complete the work economically and to the satisfaction of the Municipality.

15) If the pumping scheme is finally adopted, the Sanitary Engineer may see it through.

M. S. D. 19/7/38
Chief Engineer of Mysore.

Secretary,
L. S. G. Department.

16) Dagen.

HRR/19th.

17) It is desirable to inform the
Board of Public Health and a
all engineers make, the Sanitary
Engineer in reports to work under

WD 01642-GPS-10,000-0-0-0 in garden area of the P?

or that the work of Public Health and a
garden under the area of the P? 19/7/38

* for reference to
Public Health.

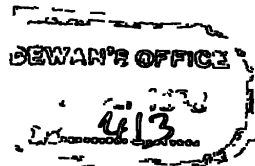
19/7/38

1) The paper must
be to the Board of Public
Health and a
all engineers make, the Sanitary
Engineer in reports to work under

PUBLIC WORKS
SECRETARIAT

File No _____ of 198

Serial
No



Chickmagalur water supply scheme.

19) Submitted for information before returning the file to the Secretary to Government, L.S.G. Department.

Dewan)

[Signature]
19/7/35

*Left no 41
no 238*

20) For Dewan's orders, please see pages of the notes within.

Secy to Govt)
L.S.G. Dept)
Write Compliments

21) *[Signature]*
20/7/35

22) For perusal A detailed note mentioning points for order will be put up

[Signature]

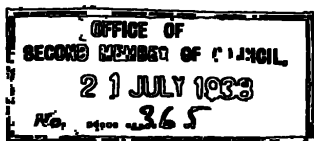
20/7/35

11 members)

23) *[Signature]*
21/7/35

[Signature]

21/7/35



345 Chick magalun balis ng pagpapalitan.

General and Revenue
Secretariat

File No 125 of 1937

[App F III-2]

Serial
No.
1

From the Engineer, Kerosene
Letter No. 457/27-28 & 4.7 28 forwarding
copies of letter of 10.6.28 from the
Chickmagalun and result of 5.6.28 from the
in the matter of improvements of the
Chickmagalun

Order of the Secretary, on the 8th of
Remains Chief Engineer to expedite the
disposal of the original file (sent) 8.8.28

Forwarded with compliments to the
Chief Engineer of Mysore for favor of
returning the original file with his
remarks immediately

By order

Mr. Jagan Manna
18.7.28
For Secretary, Mysore
19.7.28

no 43 21-7-28

Returned with compliments

2. The file referred to has been returned
with this office no 41 of 20.7.1938

Secy. to Govt.
18.8.28

am: 44

W. C. K. O. K. K. K.
For Chief Engineer

am 20.7.28

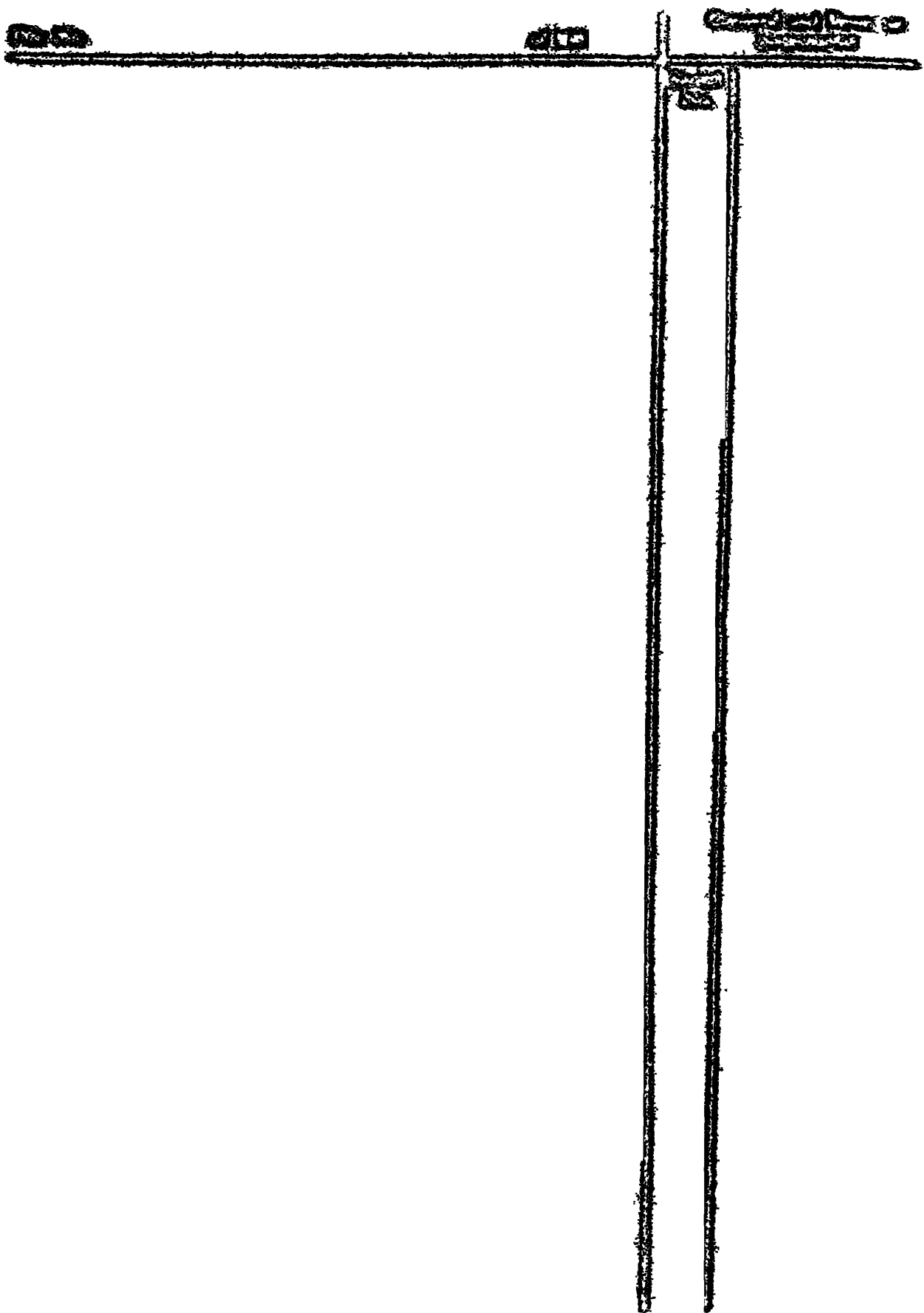
u o. 243
27/8-7-28

General Secy
B. A. K. K. K.

(5) 19/7/28

NOTE - Chief Secy

27/7/28
1/2-7-28



Chikmagalur water supply scheme
10

General and Revenue
Secretariat

File No

of 193

[App. F III-2

Serial
No.

CHIKMAGALUR WATER SUPPLY SCHEME.

M

(24) Government sanctioned the first stage of the water supply improvement scheme to Chikmagalur at an estimated cost of Rs.48,375 in their order dated 4th March 1937. The scheme consisted of ⁽¹⁾ duplicating the main from the tank and ⁽²⁾ installing a chlorination plant. The execution of the work was delayed because of the rise in the price ~~of~~ of Bhadravati cast iron pipes. The D.C. first anti-^{linal-}cipated the price would be about Rs.80 per ~~foot~~ ^{foot} ~~foot~~. In December 1936 the price quoted was Rs. 96, and it rose to Rs. 105 after the scheme was sanctioned. ~~The~~ ^A revised estimate ~~had~~ therefore to be prepared, and the Municipal Council had to be consulted as to how the ~~proposed~~ ^{was proposed} extra cost to be met.

R.

O

P.V.D (The
Director)

(25) In the meanwhile the present Sanitary Engineer pro-^{posed} an altogether different scheme, ^{namely} for sinking a well in the bed of the Yagachi much nearer the town, pumping water from there, and installing pressure filters. The one important consideration for abandoning the existing gravitation scheme was the saving in the cost of pipes, as the distance from the ^{existing} tank to the town is more than 4 miles, whereas from the well to the filters it would be only 4,000 feet.

y c

(26) The Municipal Council deferred considering the

NOTE—Contn Sheet.

Chickmagalur water supply scheme

File No.

of 128

General and Revenue
Secretariat

ways and means for finding the increased cost of the estimate, pending decision as to whether the new scheme proposed by the Sanitary Engineer should be adopted or whether improvements should be effected to the existing scheme.

27) There has been much controversy over the respective merits of the scheme and finally both the Chief Engineer and the Municipal Council are decidedly in favour of the existing Gravitation scheme.

28) The estimate already sanctioned may be worked out. It is understood that pipes from Bhadravati have already arrived, ~~and the working~~ of laying them ^{may} ~~should~~ be undertaken as soon as weather conditions permit.

29) When the original estimated cost was Rs.48,375, it was expected it would be brought down to Rs.45,000 by using second class cast iron pipes. The cost was to be met by a Government grant of Rs.10,000 and a loan to the Municipal Council of the balance of Rs.35,000. As the cost of the pipes has now gone up, the Municipal Council will have to raise a larger loan ^{and} ~~of~~ the Government grant may have to be correspondingly increased. The revised estimate is for Rs. ^{71,387} ~~70,000~~. The D.C. will be requested to forward the resolution of the Municipal Council agreeing to this revised estimate and to bear their share of the cost. The work, in the meanwhile ^{may} be ordered to be

27
17
May 3. 1937
Sent to the Mr.
Kandam Prasad for
signature

Chickana galem wate suffi repone

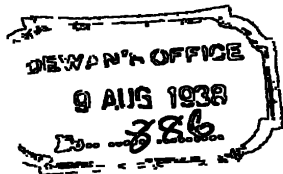
37-3-12

General and Revenue
Secretariat

File No

of 193

[App. F III-2



Serial
No.

proceeded with.

30) The Chief Engineer, in view of this controversy, is of opinion that the execution should be by the Executive Engineer, Kadur Division in preference to the Sanitary Engineer. This point is also for orders.

SECOND MEMBER }

31) The presentation scheme may be adopted and if the Chief Engineer is satisfied that the first stage can be carried out at a cost not exceeding Rs 78000 (see page 17 of the report of the Kadur Sanitary Engineer), the Govt grant may be raised to Rs 39000, the balance being treated as a loan to the Municipality.

32) The remarks of the Dewan in para 17 have to be communicated to the Sec of P & W.

33) In the circumstances of this case, I am inclined to agree with the Chief Engineer that it would be better to entrust this work to the local P.W.D. Executive Engineer.

To
4835

To
9835

Recd
27/8/38

M
9-8-38

WD 0284-GPB-30,000-12-37

NOTE—Contn Sheet.

W. J. V. 20/8/38
37/20/38

44225348

1

2

Chikmagalur Bank in 1988 Scheme

File No.

C 73-35 -
of 128

General and Revenue
Secretariat

35) Send bank for approval
12.8.38
18 for
Lorry (S.S.)

2/16/4-

(1) Performing an exercise

To
Mr
16835

PL Secy)
MC

37) This is cancell matter with
disposed of by circulation, go approved.

To
Mr
19835

Dewan)

38) Mr
22.8.38

To
Mr
23835

Pls Secy)
I member)

39) Mr
23.8.38

40) Mr
24/8

41)

1) & FV send for approval.

To
Mr
25/8

2) Please put in (4) copy of the D F V
and in 50 to
25/8

DEWAN'S OFFICE
22 AUG 1938
No 1285

FINANCIAL SECRETARIAT
U.O. No. FL 468
16 AUG. 1938
33 & 34 SALORE

OFFICE OF THE
FIRST MEMBER OF COUNCIL
Aug 21 1938
1. 2101

PHYS. SECTION

improvements to blackmanafalun rate
344 *Supp*

General and Revenue
Secretariat

File No

of 193

[App F III-2]

Serial
No

44) Typed D-F-A & draft G.O. Subb

29/8/38

Letter 1/5/38

2/5/38

308 35

2/5/38

11 members)

4b) Refce paras 14 & 31

47) The grantation scheme is finally approved. The Engr will request to get approved the project - ~~referred~~ framed & obtain detailed estimates, ~~submitted~~ the cost being kept down to the minimum necessary, ~~and~~ ~~the~~ ~~Engr~~ ~~is~~ ~~the~~ ~~first~~ ~~time~~, costing Rs 78000/- as explained on page 19 of the note of the Engr's head on the

48) For forming opinion whether the Engr's and DFR may be approved or whether it may be deferred until detailed estimates are available

318 38

2/5/38

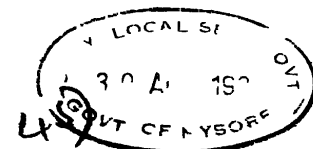
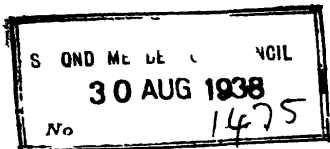
Secy PWD)

Letter 1/4/38

12.9.38

A - of administrative sanction to Rs 78000/- is accorded. The Secy, Kadun Div. ordered take up the work, he will be in a position to take over the works from the San. Bureau & prepare detailed estimates & submit for both "same". In the meanwhile he can do the preliminaries for going with the work.

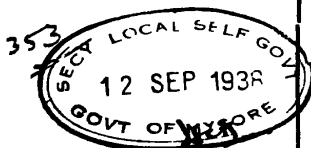
2/5/38



Returned by the member on 31/8/38 for amendment. Secy PWD

But no 123 to 938

A



49

2/5/38

NOTE-Contn Sheet.

2/5/38

Improvements to Chikmagalur Water Supply

File No.

125

of 1937

General and Revenue
Secretariat

Serial
No.



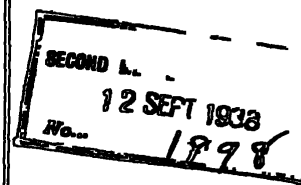
51) Revised draft and DFR are
submitted after consulting the Dy
P.W.D. as instructed

12935

11 member)

51) 13935

For Secy.
MC



52) The file, which was received in the Financial
Branch on 16th August 1938, was taken back by the
L.S.G. Branch on 16th August 1938, for discussion at
the meeting with the Director of Health in the Dewan's
chambers.

53) Two matters arise for financial consideration:-

(1) sanction of a Government grant of Rs 39,000/-
and an additional grant therefor,

(2) sanction of a loan to the Municipality to
the extent of Rs 39,000/-

54) Regarding (1), I have brought to notice on
several occasions, that there is absolutely no scope
or margin for sanctioning any additional grant In
the file relating to the sanction of an additional

of 198 7-38 [App. F III-2

grant of Rs 80,000/- under 'Rural Reconstruction', I have indicated that even with the assumptions that no further additional grants or new items of expenditure will be sanctioned during the current official year, and that the anticipated revenue collections will be realised, there will still be a revenue deficit of more than Rs 5 lakhs during the current year. The Finance department cannot therefore agree to any further additional grant. Expenditure on individual works or schemes will have to be regulated in the relative order of urgency so as not to exceed the total grant already sanctioned.

55) As regards (2) it is to be stated that the financial condition of this Municipality is not satisfactory, and its closing balance is also below the prescribed minimum. The Municipality has not stated how it will be able to repay the loan proposed to be granted by Government. Definite proposals regarding the financing of the present modified scheme have to be called for.

56) Meantime the detailed estimate for the scheme may be called for. A.C.

WD 0264-GPB-80.000-12.8.97

π member)

OFFICE OF
SECOND MEMORANDUM OF
28 SEPT 1963
No. 2262

Chickamagulen water supply

General and Revenue
Secretariat

File No.

125

of 1937

38

[App. F III-2]

Serial
No
2235

OFFICE OF THE
FIRST MEMBER OF COUNCIL
SEP 30 1938
No. 230

OFFICE OF THE
SECOND MEMBER OF COUNCIL
2 OCT 1938
2360

61) 11 members
2 members

29 9 35
2919

3079

62) 11 members 2 P.M. submitted

30735

63) Signed 7.9. is placed in file
11 members

64) 5 members submitted

Deewan

3 10 85

File No.

of 198

**General and Revenue
Secretariat**

--	--	--

Final Note by the Second Member of Council.

Subject.—

Improvement of water supply to Chikmagalur town.

These papers relate to the improvement of water supply to Chikmagalur town.

A A scheme for improving the water supply of Chikmagalur town by duplicating the main from the Hirekolale tank and installing a chlorination plant, was sanctioned at an estimated cost of Rs.48,375 in Government Order No.L.6406-9/ML.74-35-11 dated 4th March 1937, the expenditure being met by a Government grant of Rs.10,000 and a loan of Rs.35,000 to the Municipality for meeting its share of the cost. The scheme was, however, not taken up for execution as the cost of the estimate went up, due to rise in the price of cast iron pipes. Meanwhile, several alternative schemes calculated to reduce the cost of improvements were also considered.

On an examination of the several schemes put forward, it has been found that the balance of advantage lies in improving the existing gravitation scheme, the first stage of which is now estimated to cost Rs.78,000. It is therefore proposed to sanction this estimate and to raise the Government grant to Rs.39,000.

In order to meet the Government share of the cost, a demand for an additional grant of Rs.39,000 will be placed before the next session of the Legislative Council.

The balance, viz., Rs.39,000 will be advanced as a loan to the Municipality, to be repaid in 15 equal annual instalments with interest at 4½ per cent per annum. The Financial Secretary states that there is no scope for additional grants and points out that the financial condition of the Municipality is not satisfactory. The additional loan to be sanctioned to the Municipal Council will be only Rs.4,000 as a loan of Rs.35,000 has been already sanctioned in the Government Order dated 4th March 1937. As the scheme has been long under consi-

15/5/46
G. S. R. S.

consideration and is urgent, and as cast iron pipes have already been ordered^x and received, it is not desirable to put off the work.

B

The Dewan and the First Member of Council are agreeable^x to these proposals. The proposals are submitted for His Highness' gracious sanction.

Ameshaa Dan

MEMBER OF COUNCIL

Camp Mysore,
2nd October 1938

*Proposed
signature*

66) Submitted to His Highness

*I submit herewith a Final Note by the SECOND
Member of Council on the subject of improvement of
water supply to Chikmagalur town*

 for His Highness' gracious ~~approval~~ sanction

M. N. Ismat
Dewan
5-10-38

Record of Cases submitted for the Orders of
His Highness the Maharaja



67)

Subject

Improvement of water supply to
Chikmagalur town

Chief Secy
ms
8-10 38

no 225

Order

KRM
6/10/38

ms
10 10 38

SUBJECT —

Improvement of water supply
at Chikmagalur town

(*)

31 All urgent or confidential files returned with His Highness's orders may in the absence of instructions or indications to the contrary be ordinarily circulated to the Members of Council for perusal after the issue of orders

33 The Secretary concerned should see that orders in the cases referred to above are issued at once and that the files are returned immediately after to the Chief Secretary for circulation to the Members

34 In all other cases the files will first be circulated to the Members of Council at Headquarters and then sent to the Secretariat concerned for the issue of orders

(68) Circulated to Members of Council for perusal of His Highness's orders before/after issue of orders (Vide Rules 31, 33 and 34 of the Subsidiary Rules for the conduct of business of Council in the Manual of Council Rules and Procedure)

M. K. Srinivasan
Chief Secretary to Government

Through the Secretary to Government

L. S. E. Department

Go
mm
10/10

FIRST MEMBER OF COUNCIL

S. 102
12/10

SECOND MEMBER OF COUNCIL 914

2512
10.10.38

1045
14/10/38

Submitted for perusal before
issue

Financial Dept. *2*
12/10/38

NOTE — Contn sheet

14/10/38
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82 x 38
83 x 38
84 x 38
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87 x 38
88 x 38
89 x 38
90 x 38
91 x 38
92 x 38
93 x 38
94 x 38
95 x 38
96 x 38
97 x 38
98 x 38
99 x 38
100 x 38

(69) Secretary to Govt
L. S. E. Department, with
complement

For orders whether the dpts already
take up may issue none
may be advised to be issued
after perusal by
Financial Dept.

11/10
mm
30 25
2, 10
13/10

1467—GPB—500—23 2 88

2
12/10/38
mm
13/10

348
2

Chick magazine book supply scheme

General and Revenue
Secretariat

File No 125

of 1937

[App. F III-2]

R. can 913

Serial
No

Financial Secy has agreed (Vide previous
Page 10). Scope and Fair Rate.
Issue

~~17/10/37~~
17/10/37

Hand

17-10-38

6 To the Secy. Home &
the Ch Engr
the Secy of H
the Comptroller and the Secy

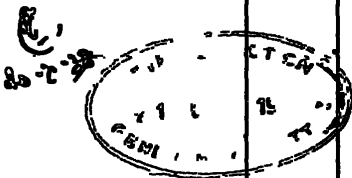
d 30/21/37 of 15/2/38

Sanctioning the 1st stage of the scheme as well
as a grant and loan of Rs 29,000 each

7 To the Secy of H

d 30/25/37 of 15/2/38

It is to be noted that the Secy Engr who took under
the Comptroller and the Secy of H
the Ch Engr in all engineering matters
and that the Secy of H should be guided entirely by
the advice of the Ch Engr



NOTE—Contn Sheet.

WD 0544—GFB—30,000—2-2-38

**General and Revenue
Secretariat**

Serial
No.

Letter no S 571 of 1-4-37 from the
Secy, Board of Management, Mysore Iron
and Steel works stating that according
to current prices, the present cost of
the second class cast iron pipes works
upto Rs 105 per ton + C R Bhadravathi,
and requesting approval of Govt to the
price quoted for the C.I. pipes, which are
proposed to be supplied for the Chickmagalur
water supply scheme

1) Order of the Secy in the P.O. D-
"References".

Dtd 11/5/35

2) Ml file 74-35-11 is put up, leading
to the issue of G.O. no L 6406-9/ml
74-35-11 of 4-3-37, sanctioning an estimate
for Rs 48,375 for the improvement of the
Chickmagalur water supply and directing
that second class cast iron pipes of
the Mysore Iron & Steel works should be
used for the work

File put up in
or the section
20/6

Chennai Water Supply

File No.

74

4761

of 1935

General and Revenue
Secretary

Serial
No

3) Secretary
The ~~Director~~ requests approval to ^{the} revised
price of ~~Rs 105 per ton~~ of the cast
iron pipes at Rs 105 per ton f.o. 2 Bhadravathi
This is a matter to be dealt with in
the Development Branch (Iron & Steel works
Section), to which the file will be transferred.

for ^{favorable} ~~needful~~ action, if appd. And
27/4/37
4) Go please, at once
28/4/37

Dev Branch
for 28/4/37

5) The Iron Works are the sellers and the
Municipality is the purchaser. It is the
purchaser that has to settle the price of
articles to be purchased ^{by him} from the seller.
When the seller demands more in accordance
with the market rate it is the purchaser
who has to ~~buy~~ fix the price considering his
own ^{requirements} ~~requirements~~ and the demand by the
seller. As such the Municipal Section
(on behalf of the purchaser) has to deal
with the paper and settle order for fixing
the price and not the Iron Works.

28/4/37
Gm

Chunafalwa water supply

1250

File No.

74

of 1934

General and Revenue
Secretariat

Serial
No

Letter no. C 1630-26 of 28-4-37
from the Director of Health requesting to
be informed as to the rate at which
the Iron and Steel works agreed to supply
the second class best cast iron pipes in
their letter no. B. 475 of 14-2-37
addressed to the Secy to Govt, Development
Dept

11) Letter no B. 475 of 14-2-37
received from the Civil Engineer, Bhadravati
Iron & Steel works is flagged & it was
stated in that letter that the works
had in stock 1000 lengths of 7" pipes,
borne under good pipes, valued at
Rs 103 per ton. and 12) The file may now be sent to the Secy to Govt
for his orders.

order made by
M. P. K. S. -

"Refers"

29/4/37

29/4/37
Secy: Secy)

13) Yes

29/4/37

30/4/37

29/4/37

4800/5814 5-816
74

File No.

of 1985.

General and Revenue
Secretariat

Serial
No

of the General Manager, Iron & Steel works,
Bhilai. The question under consideration
relates to subsequent correspondence.

1) Subj. orders that the Director of
Health may be addressed again in the
matter. Ref. paras 12 & 13 of the order
supra.

From an advertisement
estimate in the file it is
seen that the total quantity
is 368 1/2 tons. The difference
in price being Rs 13/- per ton, the
extra cost of the higher rate should
be credited with Rs 4788.
Although the order had not
been placed before the prices rose

Yy
3/6/85

105
12
13

Dear Sir

3/6

The price has been accepted

1777

20 sub. for app

3/7

Letter 152)

2/7

No need for any order now. The
deposits upon which the order was placed
are an already placed. The reply given me
concerns as to how order on same is
submitted (or order in linked file) may be a matter

4298
20/7
received back
from the
letter dated 22.7.85
the date of
submission. 2/7
with order on
the linked file
2/7

105
12
13

the Works will not be in any way liable for non-performance either in whole or in part of any contract for any delay in performance thereof in consequence of strikes, of labour, breakdowns or accidents to machinery or other accidents of whatever nature, failure on the part of the Railway Company to supply sufficient wagons to permit the material to and finished products from the Works and all causes of whatever nature beyond the Works control.

THE MYSORE IRON & STEEL WORKS

(GOVERNMENT OF MYSORE)

Telegraphic Address:
MYSIRON BHADRAVATI
Cables:
BENTLEY S
Western Union Five Letter
A.B.C. 5th Edition

BHADRAVATI
(MYSORE RAILWAYS)
India

21st April 1937.

MANUFACTURERS OF:
CHARCOAL PIG IRON
IN 7 GRADES
CAST IRON PIPES
2½" TO 30" Dia.
ROLLED MILD STEEL
BARS AND RODS
LIGHT STRUCTURES
ANGLES, CHANNELS
BEAMS, Etc.

GENERAL CASTINGS

METHANOL
DENATURING

METHYL ACETONE

ACETATE OF LIME

HARD WOOD TAR AND
PITCH

WOOD PRESERVATIVE

BLACK PAINT

KREBO
(DISINFECTANT)

The Secretary to the Government of
His Highness the Maharaja of Mysore,
Development Department,
BANGALORE.

Dear Sir,

Government Order No.L.6405-9/M1.74-35-11
dated 3/4th March 1937— Chikmagalur
Water Supply Improvement Scheme.

Against an enquiry for 4½ miles of Pipes
required for the above Scheme, we had offered to supply
our second class Cast Iron Pipes, 6" and 7" diameter in
equal quantities at a price of Rs.92/- per ton f.o.r.
Bhadravati.

According to current prices, the present cost
of these pipes works up to Rs.105/- per ton f.o.r.
Bhadravati. I am therefore to request that Government
may be pleased to approve of the latter price. A copy
of the revised quotation furnished to the Director
of Health, Bangalore, is enclosed for information.

Yours faithfully,

SECRETARY,
BOARD OF MANAGEMENT.

Encl:1

A761
J

Ref S 571
REV. S' G
H. G. D. 11

764 M

✓

THE MYSORE IRON AND STEEL WORKS
BHADRAVATI

"COPY"

21st April 1937.

The Director of Health,
Government of Mysore,
"GRACE VILLE", Palace Road,
BANGALORE.

Dear Sir,

CHIKMAGALUR WATER SUPPLY IMPROVEMENT SCHEME.
Ref: Your letter No. C 1630-20 dated 9th instant.

Our present cost of second class C.I. Pipes works
out to Rs. 105/- per ton f.o.r. Bhadravati and we shall be
glad to make the supply accordingly.

Trusting to be favoured with your orders in due
course,

Yours faithfully,
FOR THE MYSORE IRON & STEEL WORKS.

Sd P R Balakrishnan
SALES MANAGER.

b

PBB/RCK

bx
21 4 37

GOVERNMENT OF MYSORE

STATE DEPARTMENT OF HEALTH

P PARTHASARATHY, L.M.S., B.S.S.,
L.B.O.P. & S., D.P.H., D.T.M.
Director of Health.

Telephone No. 340
Telegram HEALTH

No. C. 1630-26.
Encl.

"GRACE WILLE," PALACE ROAD,

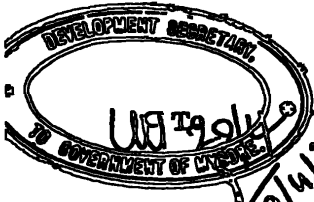
Bangalore (S. India) dated April 28, 1937

CLERK & RE-SECRET
22 APR 1937
L.B.D.M.

4850
L

FROM

P PARTHASARATHY, Esq., L.M.S., B.S.S., L.B.O.P. & S., D.P.H., D.T.M.,
Director of Health with the Government of
His Highness the Maharaja of Mysore,
Bangalore.



The Secretary to Government,
Development Department, Bangalore.

SIR,

Adverting to Government Order No.L. 6406/9/Ml. 74-35-11

dated 3/4th March 1937, I have the honour to inform that the Sales
Manager, Mysore Iron and Steel Works, Bhadravati, intimates in
his letter dated 21st April 1937 that the Second class Cast Iron
pipes cost Rs. 105/- per ton f.o.r Bhadravati. I request that you
may be so good as to intimate the rate at which the Iron and Steel
Works agreed to supply the Second class Cast Iron Pipes as per
letter No. B. 175 dated 14th February 1937 addressed to the Secretary
to Government, Development Department.

Reps
in file

I have the honour to be,

Sir,

Your most obedient servant,

P. Parthasarathy,
Director of Health.

GOVERNMENT OF MYSORE

STATE DEPARTMENT OF HEALTH

P PARTHASARATHY, L.M.S., B.S.Sc.,
L.R.O.P & S., D.M., D.P.H.,
Director of Health.

~~SECRETARY TO THE GOVERNMENT OF MYSORE~~

Bangalore (S India), dated 8th JUNE 1937

Telephone No. 240

Telegram HEALTH

NO 1630-37 *8/3/1937*
Encl.

FROM

P PARTHASARATHY, Esq., L.M.S., B.S.Sc., L.R.O.P & S., D.M., D.P.H.,
*Director of Health with the Government of
His Highness the Maharaja of Mysore,*

Bangalore

TO

The Secretary to Government,
Development Department, Bangalore.

SIR,

I have the honour to send herewith the Unofficial
file as requested by Phone. As the final reply from the
Sanitary Engineer has not yet been received, information
asked for will be sent to Government as soon as it is
received.

~

I have the honour to be,

Enclosures

U.O. file No. 217-36 dated (
30-4-1937 re. Chickmagalur)
water supply. (

Sir,

Your most obedient servant,

P. Parthasarathy
Director of Health.

GOVERNMENT OF MYSORE

STATE DEPARTMENT OF HEALTH

Seshadri Road,

PARTHASARATHY, L.M.S., B.S.S.,

L.R.C.P. & S., D.S.M., D.P.H.,

Director of Health.

Telephone No. 240

Telegram HEALTH

No. C. 1630-41

Encl. *one*

From

P PARTHASARATHY, Esq., L.M.S., B.S.S., L.R.C.P. & S., D.T.M., D.P.H.,

Director of Health, *with the Government of*

His Highness the Maharaja of Mysore,

Bangalore

To

The Secretary to Government,
Development Department, Bangalore.

Sir,

In continuation of this office letter No.C.1630-37 dated 8th June 1937, I have the honour to forward herewith a copy of letter No.S.5854 dated 28-12-1936 of the General Manager, Mysore Iron and Steel works, Bhadravati, addressed to the Sanitary Engineer, intimating that they are agreeable to supply 1042 lengths each of 7" and 6" C.I. pipes at Rs.92/- per ton F.O.R. Bhadravati.

I have the honour to be,

Sir,

Your most obedient servant,

G. S. S. S.
Director of Health.

blvs

Letter No. S.5854 dated 29-12-1936, from the General Manager,
Mysore Iron & Steel works, Bhadravati, to the Sanitary Engineer,
Bureau of Sanitary Engineering, Bangalore.

Duplicating C.I. pipe line for Chickmagalur water supply.

With reference to your enquiry No.2226 of the 16th instant, we
write to inform you that we can deliver from stock 1042 lengths each
of 7" and 6" pipes and we are agreeable to supply at Rs.92/- per ton
F.O.R. Bhadravati;

We trust that our offer will meet with your approval and you
will favour us with your indent at your earliest convenience.

" Copy "

[Signature]
Director of Health.

PUBLIC WORKS DEPARTMENT

Abstract estimate for.. the 1st Stage of Improving waterSupply to Chickmangalur

No.	Items of work	Unit	Rate			Quantity	Cost
			Rs.	a.	p.		
	<u>Materials</u>						
	1000 lengths of 12' long each or						
	12000 Rft of 7" C I pipes @ 32¢						
	3 qrs 26 lbs each 3982 14 cwt						
	1030 lengths of 12' long each or 12360						
	Rft of 6" C I pipes weighing @						
	3 cwt 1 qtr 4 lbs = 3389 3 cwt						
	Total 368 32 tons	ton	105	0	0	368 32	Rs 38 67.
	Cost of valves and Sewer Valves etc						7321
	Total Cost of materials						46000
	<u>Labour Charges</u>						
1	Earthwork Excavating trench &						
	refilling with Consolidation						
	$\frac{24360 \times 3 \times 3}{27} = 8120$ yds.	yd	0	4	0	8120	Rs 2030
2	Making lead jointing & laying etc						
	Complete 6" C I pipes	N°	3	8	0	1030	3605
	7" C I pipes	.	3	12	0	1000	3750
	Total labour charges						Rs 9385
	Total of materials & labour						Rs 55385
	Establishment Costs & Plant Charges						6923
	@ 12 1/2 %						
	Grand Total						62308

Carried over

W. C. Srinivasan
 District Engineer
 Province of Madras
 Bangalore

No.

Brought forward

Unit

Ra.

a. p.

Quantity^u

Cost

207

Serial
No
101

Letter no C-1630-45-279-7-37
for the Dir of H forwarding for sanction
a re-modified estimate amounting to
Rs 71,381 for the improvement of water supply
to Chickmagalur Town

M 1 ml file 74-35-11 is put up for
kind refce leading to S.O no L 6406-9
of 4-3-37 sanctioning an estimate for
Rs 48,375 for the improvement of the
Chickmagalur water supply

2 The approximate cost of the work
amounting to Rs 45,000 (by using second class
C 9 pipes from Madras) was ordered to
be met as follows —

(a) Govt Grant — Rs 10,000

(b) ml share — Rs 35,000

out of the ml Govt Grant, Rs 4,000 was allotted during the year 1936-37,
and the balance will be paid during the
current year in order to enable the

Improvement of Chikmagalur water supply

File No.

81

257
of 1936

General and Revenue
Secretariat

Serial
No.

which to meet its share of the cost,
a loan of Rs 35,000 was sanctioned by Govt
to the Corp., subject to repayment in 15 annual
equated instalments at $4\frac{1}{2}\%$ interest.

The remodelled estimate for Rs 71,381
now prepared by the Sanj Dept means
an extra expenditure of Rs 26,381. The
Corp will have to be consulted as to how
they propose to meet this extra expenditure.
*It has also to be decided whether Govt should bear any
portion of this expenditure for orders.*

For Sanj Dept No dated 4th March 1937 in order to
26/7

Complete the first stage of improvement. to
the water supply of Chikmagalur Town by duplicating;
the main line from the head works to the filter bed
with a 6" pipe line, the estimate for Rs 45,375 was
sanctioned. It was further noted that the cost of the
Scheme should be brought down by using
second class cast iron pipes from Ashadavatu Iron works
and still save a grant of Rs 10,000, and a loan of
Rs 35,000 with interest at $4\frac{1}{2}\%$ annum, the total cost
of the scheme to be Rs 45,000 ^{was sanctioned} from the report of the
Sanitary Engineer it is seen that the original
estimate for Rs 52,700 was prepared providing
6" pipe for the full length at Rs 4 per foot, as originally

Remodified Estimate for wall supply
- Chikmagalur
957

General and Revenue
Secretariat

File No

87

of 193

6-37

[App F III-2]

Serial
No.

agreed to by the Bhadiyathu Iron Works. The price
agreed in 1932 was Rs 92 per ton, and it now stands
at Rs 105 per ton, but the report that the Director
of Health has sent a revised estimate for Rs 71,381
and requests sanction of Govt to the revised estimate.
The Govt reply in the enclosed file has stated that the
price quoted by the Iron Works at Rs 105 per ton has
accepted the points for extra work, 1) how to meet
the extra expenditure of Rs 36,381, and 2) whether
Govt should bear any extra portion of the expenditure.
As regards point 1, may perhaps be considered
as a matter for the Board.

Letter (S.3)

5) The Council may in the first instance
be consulted as to how they propose meeting
the extra cost due to rise in price of iron

For
1083
2/11/37

6) Draft submitted for approval

Per
10/8/37

6/11/37
2/11/37

To the D C Kadur District

No 2 1666 dated 13-8-37

Requests him to ascertain from the Chikmagalur
Town Municipal Council as to how they propose
meeting the extra cost due to the rise in the
price of iron.

114

File 93/37

Sub
10/8/37
NOTE: Contn. Sheet.

Chikmagalur Water Supply Scheme

207/1053
of 1932

File No.

General and Revenue
Secretariat

Serial
No.

Letter No B 3 457/37-38 dated 24th Aug 1937 from
the D C. Hader St, Submitting the further report
regarding the Water supply Scheme to Chikmagalur
Town

Subd for perusal with refer to the above letter
No 1 1666 and 81-36-114 dated 13th Aug 1937
addressed to the D C Hader St

The D C has now ~~reported~~ reports that the
present Sanitary Engineer, Bureau of Sanitary
Engineering, has suggested an alternative
scheme, which is more advantageous, than
the one now under reference, which contemplates
Pumping water to the present Storage tanks
from a well sunk in the Yagachi stream
flowing very near Chikmagalur town. It is
also stated that this modified scheme would
result in appreciable savings in the cost
of Pipes etc, and the estimate ~~also of the~~
also would get itself reduced to Rs 60,000/-
as against the estimated cost of the scheme
under reference amounting to Rs. 90,000/-
(revised estimate about Rs. 1,12,000).

The D C has stated that formal proposals
(Perhaps the detailed estimates) from the
Sanitary Engineer in respect of the modified
scheme are awaited

It is for orders whether the D C may

* 5 1/2

Chikmagalur Water-supply Scheme

1053

General and Revenue
Secretariat

File No

89

of 193

6-3

[App F III-2]

Serial
No

be asked to await the submission of the
revised proposals from the Sanitary Engineer,
or directed to take action as per this Office
letter dated 13th Aug 1937

26/8/37

Levy (S.G.)

2/20/37

Revised proposals may be awaited

Submitted with a draft for approval

28/8/37

Levy (S.G.)

13 Forpusal

2683

2/20/37

For perusal of the

2/27/37

11 members

14 rule

27/8/37

2783

2/27/37

SECT LOCAL SELF GOVT
27 AUG. 1937
GOVT OF MYSORE

Suo Bill
16th Sept 1937

NOTE—Contn Sheet.

Letter No 2337 dated 30/8/37

The scheme was discussed with the
Chief Engineer and Dir of P.H. on 9/10/37

Chickmagalur Water Supply Scheme

no 40

File No

207/1553-
2 of 198

General and Revenue
Secretariat

Engineer, Mr R Krishna Rao, and Mr
B R. Arundhakar were also present.

The points discussed are brought out
clearly in the note (appended hereto) brought
to the meeting by the Chief Engineer.

The Scheme already sanctioned for
improving the main and forming
additional filters will wait until
the Engg. Department has decided
which scheme has the balanced
advantage. In the meanwhile the
cost will may be estimated and
the quality and quantity of water
tested.

1) Supply by gravity is always pre-
ferred to supply by pumping, and
the present existing scheme must
not be lightly given up as the
opinion of the Ch. Engr.

for
from
10/11/37

WA 315/
13/11/37

memor)

18) Forwarded with compliments to
the Chief Engineer for favour of opinion
and instructions.

12/11/37
for
deputy
12/11/37

20 8273
by
11/11/37

17/11/37

1053 Chickmagalur water supply scheme

Public Works Secretariat

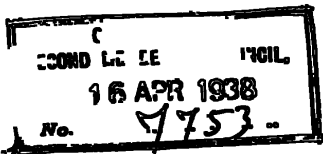
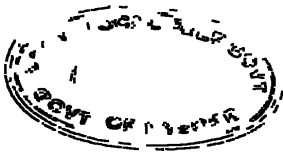
File No

of 1938

Serial
No

60649

12/4/38



18/4/38
23/5-3

20-187
27 16-6-38

Returned with Compliments.

19) I inspected the Chickmagalur water works on the 6th and 7th April 1938. I enclose herewith a note embodying my recommendations.

Secretary to Government
C.S.G. Department
Chief Engineer, Mysore
12/4/38

20) For personal use first instance. The cost of the scheme as now proposed by the Engineer 14/4/38 will have to be worked out.

14/4/38
RM

11 member)

Early

16/4/38

Forwarded with compliments to the Dy. P.W. in appreciation for favour of information cost of scheme as now worked out by the Chief Engineer -

16/4/38
259
16/4/38
RM

Serial
No

-0. No
2875-5
-31/5/38

Retransmitted with compliments.

The Note of the Chief Engineer on Chickmagalur Water Supply is herewith retransmitted furnishing the replies vis-a-vis the several points raised by him

In this connection I forward herewith a Note of information regarding (1) the standards of quantity and quality necessary for a good water supply (2) the nature of the present source of supply, the scheme of supply (3) the usual methods adopted for improving the quality of water for human consumption and (4) the result that is expected to be obtained by adopting the scheme proposed by the Sanitary Engineer and the Chief Engineer

I 1 The standards for a good water supply are -

(a) The quantity must be sufficient to meet all the demands of the community as drinking, bathing, conservancy, road watering etc varying from 15 to 40 gallons or more depending on the availability and needs and financial position of the community

(b) Quality of water Physical characters

The water should be crystal clear with no sediment, tasteless, free from odour and free from hardness

(c) Bacteriological purity The water should

be of such bacteriological purity that it should not be a source of any disease which is usually intestinal as diarrhoea, dysentery and typhoid



NOTE—Contn Sheet

II. Nature of present source of and the scheme of Supply.-

The water at the source in Hirekolale tank is extremely turbid during the monsoon months (i.e.,) about eight months of the year and during the other four months it is comparatively less turbid. The water from the reservoir is arranged to gravitate to Chickmagalur at a velocity of about 1 foot per second (as reported by the Sanitary Engineer) with ups and downs which velocity permits the deposition of the suspended matter. The settling down of the suspended matter continuously decreases the bore of the pipe. The water received in Chickmagalur contains, in spite of the settling of the suspended matter, colloidal clay even during non-monsoon season between January and June in such quantities as to collect to a thickness of about $\frac{1}{4}$ to $\frac{3}{8}$ inch on sand filter within a short period of 15 to 20 days when started afresh. The ^{filtration} filters in the sand filter has to be stopped every 15 to 20 days to remove the settled clay which procedure makes the work of the sand filter less efficient. Turbidity and impurity are maintained in the filtered water. The sample of the water taken from the public tap is as turbid as the water collected from the bottom of the river in Yagachi.

Distribution system - As the supposed filtered water still contains clay, deposits it in the distribution system. The deposition clogs up the continuously more during the monsoon season during the non-monsoon season leading to quantity of water supply to the town.

Hence the factors that go to impair the efficiency of water supply to Chickmagalur at present are (1) the turbidity of the raw water (2) the nature of lie of the land with the available fall from Hirekolale Tank to Chickmagalur for gravitation purposes permitting a very low velocity of about 1 foot per second which permits the deposition of suspended solids (3) unsuitability of the sand filters for the turbid raw water that is brought to the filters which in turn makes the filters inefficient in action

III Arrangements that are usually made to improve the quality of raw water to make it fit for safe use

(a) Sedimentation - The efficiency of sedimentation depends on the relative proportions of the sedimentable suspended matter to the colloidal matter whose particles are smaller in size than bacteria. While the suspended matter will settle down by itself when sufficient time is given, the colloidal matter will not settle down unless treated by some method. Twelve to twentyfour hours of sedimentation are recommended for settling of suspended solids to get clear water for the next stage that is filtration

(b) Filtration - Filters are of three types

- (i) Slow sand filters
- (ii) Rapid sand filters
- and (iii) Pressure filters

Slow sand filters These work more biologically and less mechanically. The pre-requisite for the use of the slow sand filter is that the water put on the filter should be clear for its efficient working. It develops a thin jelly like film over the sand in 15 to 20 days. This is a living biological

biological filter consisting of bacteria and other flora. The sand filter will work when managed properly for about 6 to 12 months. Occasionally the surface sand has to be removed depending upon the quantity of water that is prevented to pass through the filters by clogging of the pores. Sand filters require a very careful handling and not quite so foolproof and automatically worked as the pressure filters. A good deal of personal attention is necessary in the proper working. Constant vigilance is also necessary to compare the raw with the final product to watch the rate of flow through the sand filter and the quantity of the water that comes out of the filters.

Rapid sand filter.-- This is a very efficient and quick method for improving the quality of any water, turbid or clear as is used in Mysore, Bethamangala and Bangalore but requires double pumping and is expensive in maintenance.

Pressure filters.-- They clear turbidity very quickly, require smaller space and only one pumping. Cost of maintenance is less than in rapid sand filters. It involves little personal factor except the usual attendance expected of a mechanic. The efficiency of the two types of filters, slow sand filter and pressure filter, ^{is} (Roseneau) ~~as~~ as follows:-

The slow sand filter is serviceable for water having little turbidity and colour. Mechanical filters are especially suitable for turbid waters containing silt and clay and for coloured waters. Slow sand filters remove 30 per cent of colouring matter and the mechanical filters take out nearly

Chlorination

nearly all the colouring matter Slow sand filter removes about 99 per cent of the bacteria and mechanical filters remove 95 to 99 per cent As regards bacterial removal all waters whether passed through sand filters or mechanical filters are expected to be chlorinated to give a safe water supply

IV The result that is expected to be obtained by adopting the schemes proposed by the Chief Engineer and the Sanitary Engineer

(a) The scheme proposed by the Chief Engineer which is not any one of the schemes proposed by Mr B R Garudachar consists of duplicating the main and utilising gravitation, sedimentation after renewing and refitting the old filter bed with or without sand filters, and chlorination

Gravitation - As the velocity of water from Hirekolale tank cannot be changed even if the duplicate lines are laid the sedimentable matter will continue to settle down and clog the duplicate pipe just as the old ones have been clogged up

Sedimentation - Sedimentation by itself will not improve the water efficiently to make it fit for use, as the colloidal content is in such large quantities that it cannot be permitted for use Chlorination of the supernatant of the sedimentation tank may be permitted as a temporary measure when there is a break down or in emergencies and cannot be permitted as a permanent protected safe water supply The water

water has to be combined with filters.

The proposal of the Chief Engineer is to take the water from the sedimentation tank to the slow sand filter. The Sanitary Engineer reports that the levels do not permit the use of gravitation to take the water from the sedimentation tank to the sand filters. The water has to be pumped up to the filters.

(b) Sanitary Engineer's proposal consists of -

(1) Taking the water from the bottom of the river-bed into the curb well reservoir through an infiltration gallery to get as clear water as possible.

(2) Pumping the water from the curb well through pressure filters into the reservoir, chlorinate and supply.

Results that are expected to be obtained by this method:- The water that is got into the curb well containing some suspended matter and mostly the colloidal material when treated with alum and passed through the pressure filters which are especially suited for such water, is expected to get the water crystal clear and when chlorinated becomes safe water for use by the people.

Advantages:- There is no pipeline that will get clogged by the raw water and there is no clogging up of the distribution system by allowing the clear water to go through. Quantity that can be supplied has been tested by pumping 15,000 gallons of the water per hour from the curb well for 2 days continuously without affecting the level of the

level of the water in the curb well much

A comparative statement showing the original cost and the maintenance cost with their details is as follows.

CHIEF ENGINEER'S PROPOSAL	
Cost	Details.
1,94,574	Initial cost for a supply of 3 2 lakhs of gallons per day of 24 hours for Chickmagalur town.
	1. Laying 7" C I. pipeline from Hirekolalu tank to the settling reservoir. 90,100
	2 Making use of the old service reservoir as settling tank 29,419
	3. Reconditioning the existing three sand filters 12,405
	4 Constructing 5 new slow sand filters of the same size as the existing filters 62,650
	Total Rs 1,94,574

SANITARY ENGINEER'S PROPOSAL

Cost	details.
8,000	Annual Maintenance Charges (Recurring charge)
	1. Power charges for pumping, alum etc. 5,000
	2. Establishment charges. 2,000
	3. Repairs and renewals etc. 1,000
	Total Rs 8,000

Where the Chief Engineer's proposal will involve initial expenditure of about 2 lakhs of rupees and a maintenance cost of Rs 13,000/- the Sanitary Engineer's will cost initial Rs 69,425 and the maintenance cost Rs 8,000/-.

I may mention here that in either case (i e) the Chief Engineer's or the Sanitary Engineer's proposal) the work of cleaning the distribution system which has been estimated at about Rs 25,000/- has to be undertaken immediately ^{in a short time} if the quantity of water supplied in the Chickmagalur town is to be improved.

O Barkanay
Director of Public Health

General and Revenue
Secretariat

Chikmagalur

4462
Water Supply Scheme

File No.

81

of 1933.

[App. F. III-2]

Serial
No.

no. 218
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Forwarded unofficially with compliments
to the Chief Engineer of Mysore for favour, of
his remarks

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vi. Improvement of the distribution system to be taken in hand. Here the condition seems to be that the distribution pipe runs through the betta, which is situated along a ridge or backbone, and the distribution pipes on both sides fall rapidly into the valleys. Hence the main gets quickly depleted in the upper regions. Improvement would be possible for a more equitable distribution by introducing suitably designed bends at the commencement of the secondary pipes. Badly incrustated pipes to be cleaned and replaced: Whenever necessary, larger pipes may also be laid.

(vii) Acquiring the rice fields above the Hirekolali tank for preventing contamination.

2. If there is a town ideally situated for a satisfactory gravitation scheme of water supply, it is Chickmagalur. Pumping here is altogether out of place, especially when the river bed is so unsuited for the infiltration of water.

5. An abandoned irrigation feeder channel on the Seethalayana-giri is being restored and it is stated to be almost ready. The restoration of this feeder is an excellent idea and it will go far to meet the demands of both the water supply and irrigation of this valley. There is an idea that the tank bund of the present Hirekolale tank may be thickened and raised so as to allow some storage to tide over the dry months. But with the restoration of the feeder channel, it may not be necessary.

6. There are three sand filters which can supply 1.20 lakhs gallons of water per day. To handle the extra supply of about 2 lakhs of gallons, I suggest that the old filter beds, now in disuse which are situated 750 feet away from the existing filters may again be brought into use to serve as settling tanks. Water should be settled in these tanks after admixture of alum. The clear water may be drawn off and chlorinated before being led into the distribution mains. In view of the purity of the natural water here, settlement only may be found sufficient. But if found necessary, we can easily add filters suitably designed.

It will not improve the water supply finally and will lead to unjustifiable waste.

4. The most suitable line of action for improving the water supply of this town appears to me to be the immediate laying of an additional main of a suitable diameter. It is very desirable to keep the diameter of the duplicate main the same throughout its length. As the 7" diameter pipes have already been purchased, I would suggest these pipes being laid immediately for the whole length. The 7" pipe would give a discharge of $2\frac{1}{2}$ lakhs and with 1 lakh of gallons available with the already existing 5" main, we will have $3\frac{1}{2}$ lakhs gallons per day and it would be ample for future development for many years to come.

(b) The stream here runs in heavy black cotton soil. The well runs through this soil and lower down through soft decomposed schist. There are indications of slight shingle and sand in the bottom. Artificial infiltration gallery consisting of an open cut with 1' diameter open joint stoneware pipes and jelly backing is being constructed from the stream bed to the well and pump. In the conditions here, the arrangements can by no means be called an 'Infiltration well' and 'Infiltration gallery'. Conditions are here quite unlike the conditions for example at Belur, Chennapatna, Closepet or T.Narasipu where true infiltration well and galleries could be made. In Chidambalur, it is only a misnomer. Having regard to the conditions of the soil and the river here, the idea cannot be considered a happy one.

2. For improving the water supply of the town, one of the schemes proposed is to lay an additional main of 7" for the first half length and 6" for the other half and maintaining the existing filter beds.

3 (a) The second proposal is a pumping scheme from an infiltration well sunk in the bed of the Yagachi River on the Chickmagalur-Narasimharajapura Road the length of the main being 4000 ft. A test well 15 ft in diameter and 15' in depth has already been dug. The depth of water was observed to be 4 feet, at the time of my visit, and the pump depleted the well completely in half an hour. There are no springs and the inflow was very poor.

1. The existing scheme of watersupply to the Chickmagalur Town is by gravitation from the Hirekolale tank to the filter beds with a net head of 100 ft. in a distance of 24,400 feet ie , a fall of 4 ft. in 1000' Prior to the construction of this tank water was being drawn into the 5" main through a small pick up weir. The present small tank near Hirekolale was constructed about 5 years ago with a view to preventing silt being drawn into and choking the pipe and also for drawing a clearer water into the filters

The water drawn from the surface of this tank is fairly clear and there is a storage depth of about 9 feet of water The discharge through the incrustated pipe of 5" diameter with a slope of 4 feet per 1000 feet is 1 06 lakhs of gallons per day This is about the quantity that the town is receiving through the existing 5" main The population of the town at present is about 13,000 and allowing 20 gallons per head per day 2 6 lakhs of gallons are required

So the deficit quantity is 1 6 lakhs of gallons and allowing 25 gallons per head for providing for future extensions, the quantity required is 3 25 lakhs gallons per day

Chikmagalur Water Supply

-: NOTE :-

The Executive Engineer, Kadur Division

There are two different Schemes suggested for improving the Water Supply of Chikmagalur Town. One is gravitation and the other is a Pumping Scheme. Both schemes are feasible and out of the two, the cheaper Scheme consistent with ease of working and certainty of supply has to be adopted. The following investigations have been made:-

GAUGING OF RIVER FLOW DURING SUMMER MONTHS: To see if the supply is adequate for improved water Supply. A clay bund was put in across the Stream up-stream side of Herakolale Tank across the Yagachi ~~to~~ ^{and} a sharp edged "V" Notch put up. The discharge was found to be 3.5 lakhs gallons per day gauged early this month. Since already we had received certain showers, it can be stated that in the event of the Improvement Scheme being taken up, the summer flow may fall short of the demand and some extra storage is necessary which is supplied by the present Herakolale Tank.

In the case of the Pumping Scheme at the curb well situated four miles lower down, there is a chance of a drop ^{in supply} ~~the water~~ to evaporation and percolation losses down these four miles. As such, for this scheme, it will be necessary to raise the bund by six feet and have extra storage to last for three months at a rough cost of Rs.7,000/- This should necessarily have to be added to the Pumping Scheme to save Chikmagalur from possible drought during summer months.

SECOND OBSERVATION:- From a perusal of Mr. Marker's Scheme available from old records, it is noticed that there is a head of 160 feet at the delivery ^{end} ~~end~~ at the Filter Beds and that the same would deliver 1,20,000 gallons per day.

C.O.

The present discharge as ascertained from the daily storage receipts in the Service Reservoir is 100,000/- gallons i.e., to say after a lapse of about twelve years ^{it could be inferred that} there is not much of loss due to incrustation of pipes. This reduction in capacity is probably due to the fact that for many years prior to the construction of the new Herekolale Tank in 1935, the water was being drawn from the river bed itself at Herekolale and on account of the heavy head, much of sand and silt was being directly drawn into the pipe line. Further, the scour valves provided all along the line were rarely operated to clean up the line. A booster pump was put up in 1935 and the whole line fully flushed and cleaned up. Since then there has been no complaint and the 5" line of Mr. Market has been, since commencement, practically giving the full supply for which it was designed.

It is learnt from records that after the completion of the original scheme, the Municipality refused to take over the Water supply since 1,10,000 gallons was being supplied against the designed supply of 1,20,000/- gallons.

These facts make it clear that the supply main has not been badly incrustated even though it has been in service for many years and up to 1935, it has been drawing water from actually the bed.

TEST OF SAMPLES:- Under instructions from the Superintending Engineer, samples of water from the (1) Herekolale Tank (raw water), (2) raw water from delivery main at filter beds, (3) Filtered water from Sand filters, (4) water from taps at the head of the supply line Basavannahally, (5) water from tap at centre of town (Ganapathi temple), (6) water from tap at end of distribution at Executive Engineer's quarters, (7) Water of

(7) Water of stream at curb well were tested for sedimentation after 2, 6 & 12 hours. The following were observed:-

- (1) All water settled perceptibly by six hours.
- (2) After six hours there was not very much change in colour indicating that practically all sedimentation that could happen was over by six hours time.
- (3) The raw water from (1) & (2) appeared to be practically identical with each other.
- (7) appeared to be a shade denser.

Filtered water from (3) was crystal clear and did not deposit any sediment after hours of settlement, indicating the efficacy of sand Filter-Beds.

After entry into the distribution main, the filtered water got turbid as could be judged from seeing the samples 4, 5 & 6 from distribution mains, the turbidity in 4, 5 & 6 being similar. This indicates that the distribution system is badly fouled and not the delivery main leading from Herkolale to the Filter Beds.

This fouling or bad incrustation appears to be due to two causes:- (1) As per theory, intermittent flow in pipes causes rapid incrustation. Chikmagalur Town supply being intermittent, rapid incrustation has taken place.

(2) During periods of shortage, the Ramanahalli open channel water which crosses Chikmagalur Tarikere Road at the head of Basavanahalli at the Town is being allowed directly for many years into the distribution main and this has been directly issued through the distribution system for consumption ^{at regular intervals}. This raw water from the open channel, I believe, has been a great cause of rapid incrustation of the pipes. This is also th

the reason why filtered water from Filter beds which is crystal clear gets turbid as soon as it enters the distribution System.

~~THE SECOND CONCLUSION~~

A second conclusion could be drawn. The water from Herekolale tank is received right at the foot of the Hills and there is no irrigation worth mentioning. Also, being at the foot of the Baba Budans, it has got a certain percentage of iron salts. As such even though raw water has been directly let into the distribution main at intervals from the open channel - the Chikmagalur Town has suffered not sufficed from any intestinal water borne diseases.

This indicates that alumising and chlorinating might do for the present. A second set of experiments were tried with water from the same samples and treated with alum powder at one grain per gallon. The filtered water from sand Filter Bed did not show any change nor was there any sedimentation. All the water from all samples settled rapidly and a crystal clear liquid resulted from each, at the top, and the sediment remained in the bottom Six hours duration is considered ample.

It was impossible to tell the filtered water from sand beds, with alum treated water from any one of the above sources.

If therefore the raw water is treated with alum at Herekolale and then led on to the sand filters, then there will be no trouble of sand screens choking up as at present.

The clay deposit is barely 1/16 inch on the bed, which should be expected as not at all strange if raw water is let into sand beds direct as at present

C.O.

Investigation of levels. - From the Ramenahally or Allampur Nala, Gravitation flow into the existing Filter beds is possible. This channel crosses the Chikmagalur Tarikere Road at second mile or about 4,000 feet from the site of filter Beds. A fall of 16 feet is available between the bed level of the channel and the delivery line cill into the filter beds. As such, an R.C. conduit for 4,000 feet will carry the water directly by gravitation to the filter beds. But, ^{1stly} shortage of supply due to flow along ^{2ndly} Ramenahalli channel, ^{3rdly} pollution as it approaches near the town and ^{4thly} extra silt from irrigated upper margin paddy flats during irrigation season are ^{some} draw backs. Any way, it is a point to note that gravitation flow to filter beds without C.I. pipes line is possible. In such case, the storage tank by extra storage of six feet at an expense of Rs.7,000/- at head works and Ramenahalli anicut repairs at a cost Rs.1,500/- have to be added to this.

LEVELS OF OLD FILTER BEDS:



New filters:-	Bed level below sand	=	R.L.41.50
	Overflow level	=	R.L.49.00
Old Filters - lower units	—		
	Bottom level	=	<u>34.00</u> R.L.
	Top level	=	46.21 R.L.
Old Filters - upper units	—		
	Bottom level	=	<u>43.50</u> R.L.
	Top level	=	<u>51.50</u> R.L.

The top width of the bottom units is $2\frac{1}{2}$ feet.

From the above, for water to flow to 41.50 or even three feet higher say 44.50, it is possible to raise the walls all round the bottom unit of old filters to R.L.52.00, i.e., the raising of new wall would be six feet at the most. The portion of water between 41.50 to 34.00

✓ i.e., 7½ feet would be dead water for silt deposit in settling tanks and the water can be allowed to flow ^{by} gravitation to the existing sand filters. There is therefore a possibility of gravitation flow in the event of utilising old filter beds as settling tanks.

INVESTIGATION AT THE CURB WELL:

The present curb well is located at the bottom-most point of a wide stretch of paddy flats and much of the water from the following villages drain into it after passing through paddy lands— Uppalli, ^{Balihal & Nanaganahalli} Ramenahalli, Allampur. It also hugs the very much populated Basavanahalli Extension of Chikmagalur Town. As such, the water would be very liable to manurial ~~contamination~~ ^{and} faecal contamination. The site for the well for a pumping scheme would have to be transferred higher up the valley and I would suggest the well being located near Ramenahalli Anecut. A second precaution will also be necessary, all the irrigable land in the upper margin will have to be acquired and kept free from ~~com~~ cultivation as in the case of the Hesargatta & lake for Bangalore Water Supply. The estimate would have to be revised on the above lines.

~~Gravitation along Ramenahalli~~

CHIEF ENGINEER'S PROPOSAL OF GRAVITATION FROM RAMANAHALLI CHANNEL:-

Gravitation along Ramenahalli or Allampur open channel upto 4,000 feet of filter beds and thence through an R.C. conduit to Filter beds is possible since levels permit but not desirable (in my opinion) since (1) there will be water difficulty during summer due to evaporation and absorption, (2) liability to manurial ^{and faecal} contamination, ~~and faecal~~ (3) linking up a water supply with irrigation requirements is a great source of trouble in my opinion.

C.O.

Channel water in most of the cases is likely to be very turbid during the monsoon season, and in addition the channel acts as a receptacle for drained water from the wet lands. Invariably this would mean manurial contamination which will be highly detrimental to health. Even after filtration the standard of purity will be rather low in such circumstances. Therefore channel water can only be recommended to be used for water supply purposes when there is no other better source available.

The following precautions are necessary to be taken in ~~whi~~ case it is decided to use the channel water:-

- 1) A big settling tank has to be constructed in which water from the channel is led in for alumising.
- 2) Only settled water should be taken through the pressure filters by means of pumping units.

If there is sufficient convenience for putting up the settling tanks, and if flow of water in the channel is found to be adequate throughout the year, the Ramanahalli scheme would be ^{probably} ~~very much~~ better and more economical than ^{as a pumping scheme} ~~the one proposed by the Sanitary Engineer~~. In this case the delivery head will be considerably lower than that in ^{the pumping scheme} ~~that proposed by the Sanitary Engineer~~. As such, the power charges will be considerably low. Should the gravity scheme be dropped, the next best would be to adopt the pumping scheme from the Ramanahalli channel by providing necessary coagulating tanks and filters. *But, I am not in favour since the channel flows in close proximity to villages*

The above investigation has been made on the lines suggested by the Superintending Engineer when he was here during the middle of this month and I have not had time to obtain his views on the conclusions that I have drawn

drawn now- but I feel he will not dis-agree with me on many points.

Based on the above notes, I have been able to gather, I proceed to make the following remarks on the notes furnished by previous inspecting officers.

OBSERVATIONS ON THE REPORTS OF THE DIRECTOR
OF HEALTH AND THE SANITARY
ENGINEER *and the Chief Engineer*
ON THE
PROPOSED CHIKMAGALUR WATER SUPPLY SCHEME.

Para 1:- It is stated that the water in the Herkolale Tank will be extremely turbid during the monsoons the duration of which is stated to be eight months in the year. This does not appear to be the case. In the first place, ^{the} monsoon season does not last more than 5 months in these parts, i.e., from June to October. Even in Maidans with a catchment which is irrigated the early rains carry ^{much} silt since the dust of summer months will all be get carried. But in this case, being a thickly wooded and steep hilly catchment with practically no irrigation, the water is naturally wholesome without much of turbidity and quite potable. It is from this source that the Chikmagalur public have been drawing their supplies of water for the past 15 years, and the fact that there have been no water-borne epidemics here during this period is proof enough of the wholesomeness of the water available at Herkolale. That there is 1/16 inch depth of silt deposit on sand beds in 20 days is no criterion since water is led on to sand beds without sedimentation.

Originally, the pipe line from the Head works to the filters was connected to a small cistern into which the Yegach river was let in. As the pipe line was at

At the bed of the river, there was likelihood of some silt getting into the pipes during the monsoon season. Later in 1935, to avoid this difficulty, a tank was constructed with a total depth of 9 feet at the draw point, with sufficient margin for silting in the bed. The drawing point was lifted $\frac{1}{2}$ up to 9 feet above the bed so as to draw water only from the top surface. It has been found from experience that the silt during the monsoon season in these parts is only heavy and settles down very quickly. As such, the $\frac{1}{2}$ arrangement of drawing water from the top surface of a fairly big tank which has been acting as a silt-trap, has had the desired effect. Of late, practically very little silt comes over through the pipes into the sand filter thereby $\frac{1}{2}$ reducing the chances of choking the pipes.

It is stated in the Report that the velocity of water in the pipe is only one foot per second. With a 7" duplicate line and a head of nearly 160 feet the velocity in the pipe will be seen to be over two feet per second, which is quite good enough for a gravitation scheme like the one proposed. This velocity does not allow deposition of the suspended matter.

By taking the necessary precaution of scouring the mains with scour valves at short intervals systematically, and making it a routine job, the accumulation of silt in the pipes, if any, will be minimised. The engine and pump bought some time ago by the Chikmagalur Municipality could be put into service at the tank to scour the pipe line by boosting up the pressure through the pump once in a fortnight or so. The apprehension expressed that the bore of the pipe gets reduced after some years need not therefore be entertained, as can be proved by

C.O.

by the fact that even today in spite of the water having been drawn at bed level for many years the discharging capacity of the main has not been reduced appreciably. Further, I am proposing a small coagulation tank at Herekolale head works as per sketch enclosed at a small cost about Rs.6,000/-, which would completely remove incrustation troubles if there should be any^{at} all.

Further, the cheking up of the pipe in the distribution system cannot be the same as that in the main pipe line from the tank to the filter beds. The delivery main of the main pipe line from the tank is not subjected to the same conditions of being empty and full at intervals as is the case in the distribution system. Incrustations will be invariably very much more in distribution pipes which are subjected to intermittent supply conditions. This, therefore, cannot be the criterion for judging the condition of the main delivery pipe line whose conditions are entirely different from what exist in the distribution system.

At present, the very muddy open channel water is diverted into the distribution system at Sasavanahalli frequently due to shortage of supply, and this has added to the present incrustation in the distribution pipes.

The nature of the lie of the land at Chikmagalur is eminently suited for gravitation system of water supply, and I am at variance with the adverse opinion expressed in this matter. There has been a gravity head of about 160 feet from the head works to the filter beds which cannot be found in any other gravity installation in the State. The assumption of one foot velocity per second is therefore not correct, whereas it is actually over two feet per second in the proposed new pipe line

The water, particularly after passing through the coagulating tank at the Herekolale head works, as already proposed by me, would certainly be quite suitable for the sand filters, and there is no reason why it should not be as efficient as any other good water supply system, particularly when the raw water is alumized at the settling tanks.

I am informed that the gravity system of water purification with slow-sand filters has been adopted in big cities like Calcutta, Bombay and Madras, and should be developed wherever local conditions permit as in Chikmagalur. It is not the same as the gravity schemes in places like Tumkur, Kadur, and Chintamani, which are situated under different conditions not favourable for a gravity scheme. In these parts, viz., Tumkur, Kadur, Kolar etc., the catchment areas are so flat and fall so small that there are chances of very heavy silt accumulating in the tanks during rains. In addition, the head is very low and the pipe lines are taken from the bottom of the tank & beds which naturally tends to choke up the pipe lines with silt. Therefore Chikmagalur, which has ^{much} a head ~~of~~ over 100 feet cannot be compared in respect of conditions for successful adoption of ^a gravity scheme, with Tumkur, Kadur or Chintamani.

Para 2:- The scheme now proposed is based on what I feel as the most efficient in serving the public interests best, taking into ⁴count the circumstances obtaining in the locality, and keeping in view economy in cost and efficiency in operation. The gravitation system is particularly well situated for Municipal - managements to handle. It is fool-proof, and requires absolutely very little technical management, such as is necessary for a pumping scheme. The maintenance cost is very low ~~compared~~ to the latter, and the slight extra

extra cost involved initially will be paid for within a few years of operation by the direct savings it is possible to effect in recurring charges. A pumping scheme, generally on the other hand, requires skilled attention, involves a much heavier recurring expenditure, and a good deal of trouble and annoyance in operation and even complete stoppage when current fails or something goes wrong with the pumps etc^{as it should as it is an advance} Round about Bangalore where frequent inspection of departmental officers is possible and able mechanics^{early} available, pumping schemes may be in a few cases be recommended over a gravitation scheme but in outside reaches, it is essential that the Municipalities should be spared these anxieties and expense, when it is quite possible to help them with a scheme which is not only inherently superior but also capable of running with the minimum of trouble and ^{expense} I have already cited the instance of Mudigere town water supply wherein one pump set was deleted and a new one just installed. In the interval for over a month the town suffered and now the Municipality is out for trained Drivers. In very many places, as indicated already, the want of sufficient head is a bar to the adoption of gravity system. When nature however is most favourable to it, as in Chikmagalur, the system should in my opinion be adopted and developed even if it costs a little more, initially.

I believe that in Bombay, the water from Tansa Lake is used direct, at times with chlorination, and at ^{emergencies} ~~others~~ without. The same procedure may be adopted here also if the water is found to be fairly satisfactory as regards bacteriological purity. From the fact that even with Ramanahalli channel water being ~~be~~ diverted into the Distribution ~~main~~ mains at intervals the town has thrived

thrived and not suffered from intestinal complaints, indicates that Herekolale Water is harmless and potable. Slight turbidity does not affect health so long as the water is free from bacteria. This matter could only be cleared by actual tests, and not by mere assumptions.

The provision of the tank and, in addition, alumising the water at the inlet, and the putting up a small coagulating basin immediately after the bund and drawing water from the other end of the coagulating basin as per sketch enclosed will, I believe, prevent a good deal of silt accumulation during the monsoons. In addition, frequent scouring with the available pump will practically eliminate any chances of silt accumulating in the pipeline and as such there need not be any doubt whatever with regard to the efficient working of the pipeline and giving the required quantity of supply for years to come. In this respect of raising the tank bund by six feet and increasing storage and providing for initial alumising in a coagulating tank, I differ from the scheme of the former Sanitary Engineer ^{Mr B. N. G. Anandachari}. From the levels ^{by} I have given of the old filter beds, it is possible to convert them at a small cost to settling tanks and allow water ^{by} to gravitation to the existing sand filter beds after settlement. After this presettlement after alumising and passing through coagulating tanks at head works there will be no trouble of incrustation.

After the preliminary sedimentation at the head work and subsequent sedimentation at the filter beds, the water could be chlorinated and tested for some time. If it is then found satisfactory, there is no reason for adding to the present number of filters. After all, every Municipality should be given only what it can afford and

and the water that Chikmagalur has been getting for so many years is as stated channel water. When this part is completed and a need is found for further purification then another set of filters could be added and not till then. The head also could be raised in the filters to increase the rate of flow in the sand filters particularly when there has been presedimentation. There is no second opinion on the fact that slow sand filters give much better quality of water than the rapid filters, particularly when the water is alumnised and settled before being charged to the filters.

The Sanitary Engineer appears to have in the first instance thought it feasible to tap only the underground supply of water and not the surface flow, at the present curb well, and the infiltration gallery was intended to really serve as one. This is clear from the following extracts of *his* letters to the Municipal President, Chikmagalur.

Letter No.S.E.862 dated 24/28th August 1937 from the Sanitary Engineer, Bureau of Sanitary Engineering, Bangalore to the President, Town Municipal Council, Chikmagalur.

"In this connection I wish to bring to your kind notice that since this new scheme depends for its success, on the availability of plentiful supply of water at the source viz., in the curb well which is proposed to be sunk in the bed of the river Yagachi at the chosen spot, it is proposed to take up this work of sinking a circular curb well of suitable diameter in the bed of the River in the first instance and test the yield of the well with suitable pumps from the point of view of the present and future requirements of the town for 20 years to come, and if the results obtained thereby are found to be satisfactory, to work out the rest of the scheme to its completion"

Letter No.1392 dated 6th October 1937 from the Sanitary Engineer, Bureau of Sanitary Engineering, Bangalore, to the President, Town Municipal Council, Chikmagalur.

" Regarding the second para of your letter, the construction of the curb well is a permanent feature of the scheme of Rs.69,425/- which is now before the Council and it will be undertaken only after the scheme is accepted by the Council and sanctioned by Government. The estimate of Rs.2,500/- provided in the above scheme includes the cost of temporary use of engines and pumps for bailing water during the sinking of curb well. The alternative scheme of Rs.69,425/- was prepared by this Department in anticipation of tapping a good source of water in the bed of the Yagachi River close to the Town. Since forwarding the above estimate to the Municipal Council for acceptance, a trial well was sunk in the bed of the River at the selected spot to examine the strata of the bed of the river and the nature of the percolation of water. The reports received so far, about the trial-well, justify our expectation of tapping a good source of percolation below the bed of the river for supplying enough water to the whole town of Chikmagalur from a curb well of suitable size sunk to a depth of about 20 feet in the bed of the river."

Therein he gives a clear assurance of meeting the full demand of Chikmagalur town from underground supply alone from actual ~~that~~ ^{that} it is seen that there is no percolation supply at all and in effect the curb well and the improvised infiltration gallery is only a sump well for the pumps into which the water from the Yagachi is directly led in through an open jointed stone ware pipe jacketed all round by stone jelly for a length ^{of} about 30 feet with a view to keep off silt from direct entry. Subsequently, the idea of underground supply is found to be abandoned and the river water is stated to be led into the well directly by means of the jelly drain. As such.

the curb well and infiltration gallery ^{from only} a sump well and jelly drain duct.

^{arrangement} This, no doubt, leads the water from the river to the curb well and increases the quantity of water there only for a certain period. The jelly drain put up in the cutting or in the channel is likely to be choked up within one or two seasons after which there will be very little flow through it. This is assuredly not a system which could be safely relied upon for adequate quantity of water, and there would be the constant trouble of getting these jelly out and cleaning and putting them back, which would involve a very heavy maintenance expenditure and probably cause dislocation, ¹¹ of supply too. As such, duplication of this duct is very necessary and the extra cost should be included in the pumping scheme.

Further, the small jelly that may have been used in the channel cannot arrest the silt in colloidal state which naturally chokes up the filters. Hence, even after the jelly drain, the filters are not likely to get water of low turbidity to enable the pressure filters to give crystal-clear water. The Yagachi at this point is not a river or stream which feeds as in case of Holenarasipura, Konanur, or Saklespur. It is a mere drain and in summer the flow is very small ^{indeed}. As such, I expect the turbidity would be very great and likely to give a lot of trouble both on the pumping side and on the filter side. The pressure filter cannot, in my opinion, give clear water unless the turbidity is brought down to as low a figure as possible. Any turbidity ~~is brought down to as low a figure~~ more than 200 in the raw water would tend to choke up the filters necessitating frequent washing. This naturally ^{introduces a cut on the already} ~~restricts the quantity~~ ^{source} of water that could be pumped, and to guard against this

against this emergency, another filter of similar capacity is very necessary and should have to be provided for to allow for frequent washing and overhauling. A large quantity of water would also be necessary as wash water for ~~perre~~ pressure filters and the slender inflow at the curb well during summer cannot be afforded to be wasted if the town demand is to be met. As such, raising of the Herekolale storage is in my opinion a necessary item in the pumping scheme.

No pressure filters would work satisfactorily without proper ~~sedimentaion~~ tank and the inclusion of the sedimentation tanks and extra filters and duplicate pumping sets are all necessary items which should find a place in the pumping scheme. These when taken may not work out to a low figure when compared with ~~gæ~~ gravitation scheme.

It will be widely accepted that it is a very risky matter to have a single ^{pumping} unit for the water supply of a premier town like Chikmagalur. A duplicate set is absolutely necessary as otherwise there is constant danger of the water supply failing during times of current shut-down or when the pumps go out of order. *This ~~has~~ should be provided for*

There is also the much more insidious danger of the curb well at the bed of the river drawing in all the manurial contaminations from the paddy fields round about, as the well is much lower than the surrounding area. ~~There-is-also-~~ the well being located at the tail end of a fan shaped basin of paddy flats which are likely to drain their manurial water into the well; there is also the great possibility of faecal contamination as the well is situated in dangerous proximity to the Basavanahalli end of Chikmagalur town and I find people resort for easing themselves to the Halla bank. Further, a number of people and washermen come to the halla to wash their soiled linen. I have also a sentimental and depressing

depressing objection viz., the curb well actually abuts the cremation ground. This has a great depressing effect upon the town's people. With all these draw backs, I feel that no amount of filters will free the water of such contaminations.

The pumping scheme proposal appears to be therefore defective for the following reasons:-

- 1) The supply cannot be adequate and sure throughout the year. Herekolale Tank raising is very necessary for this scheme.
- 2) The well water is bound to get contaminated by the manure~~s~~ used in the paddy fields round about and by faecal matter which cannot be possibly removed by the filters. As such, all the lands upstream - side of the well between Chikmagalur Tarikere and Chikmagalur Marasimarajapura Roads will have to be acquired, cultivation stopped and fenced^{as watched} as in Hesaraghatta.
- 3) It entails considerably higher maintenance cost, requires greater technical and adept attention and is therefore more expensive and difficult for a Municipality to manage. It is by no means a simple and trouble-free scheme.
- 4) At times, want of spares will interfere with supply.
- 5) Risk of break down with attendant inconvenience to the public.

Regarding the comparative statement of original and maintenance cost comparing the two schemes, I wish to state that there are certain mistakes e.g., cost of pipe line C.I. is worked out at different rates for each scheme. This has been corrected and other deviations are fully explained in the remarks column. *below*

Laying the 7" C.I. pipe line has been estimated to cost Rs. 80,000/- whereas it cannot exceed Rs. 60,000/- as I have got reliable information that the pipes could be made available at the maximum rate of Rs. 110/- a ton at present. *This rate has been adopted in calculating cost of pipe line for pumping schemes.*

The estimates for each proposal may be roughly given below:-

Gravitation Scheme —

1) Laying 7" C.I. Pipe line from Herekolale to the settling tank...	...	Rs. 60,000/-	✓
2) Making use of the old <i>surface</i> reservoir as settling tank....	...	Rs. 8,000/-	✓
3) Construction of an efficient Coagulating tank at the Head works...	...	Rs. 6,000/- 2,500/-	9
4) 1 Chlorinator..	..	Rs. 2,000/-	
5) Distribution Improvements.	...	Rs. 1,500/-	

First stage:- Total.... Rs. 78,000/-

Second Stage:-

1) Raising the capacity of Herekolale Tank by six feet depth....	...	Rs. 7,000/-
2) After testing the settled and chlorinated water, if still found necessary, a further expenditure to be incurred on the construction of two more new sand filters and reconditioning the existing filters.		Rs. 30,000/-
Total....		Rs. 37,000/-

After preliminary coagulation and settlement the filters would be more rapid in action. Even now the water is so good that the sand has not needed renewal after two years.

Thus, by spending about Rs. 1,05,000/- at the most Chikmagalur would have a fairly efficient water supply scheme fool-proof and trouble-free in running, entailing no worry in management, and involving the minimum maintenance cost.

8000
2500
1500

7200
3700

3500
2500

1000

The annual maintenance cost in this would amount to:-

1) Establishment...	...	...	R.1,200/-
2) Alum and chlorine...	..	..	R. 500/-
3) Repairs and renewals in the Distribution system system (not much mention, except sand renewal)...			R.500/-
4) Oil engine running for scouring...			R. 500/-

Total...			R.3,000/-

For as the pumping scheme the following pre-requisites should be full-filled.

1. The capacity of Herekolale tank should be necessary^{ly} raised.
- 2) Wet lands about a mile in extent all round the well should be acquired and kept free from cultivation of any sort by fencing and watching.
~~Probably~~ The well site has to be shifted to the silt of Ramanshalli ancient about a mile higher up.
which would increase the length of the rising main by another mile.
- 3) Duplicate pumping sets should be provided for
- 4) There should be four filters instead of three,
- 5) ~~Additional~~ Jelly drain and well has got to be duplicated.
- 6) Settling tank is very essential and should be provided for.
- 7) ~~The pump and motor has to be duplicated for obvious~~
~~reasons.~~
- 8) For efficient supply the pumps and filters have to be definitely under the management of the Sanitary Bureau and the question of Municipal management should not be thought of.

The cost capital cost will be as follows:-

- i) Herekolale tank raising essential.... R.7,000/-
- ii) Capital cost shown by the Sanitary Engr. 69,425/-
- iii) Land acquisition

B.F....	R.
3. Land Acquisition, fencing of upper margin, and watching.....	R. 12,000/-
4. Extra length of pipe line due to shifting of wall..	R. 10,000/-

~~Total..... R. 22,425/-~~

5 Duplicating pumping set...	R. 4,500/-
" Erection charges....	R. 500/-
6 Chlorinator....	R. 2,500/-
7 Additional filter...	R. 8,000/-
8 Additional wells with drainage galleries.	2,500/-
9 Settling tank prior to pumping L.S..	10,000/-
	R. 1,26,425/-

Deduct extra provided in original scheme

R. 2,425/- Balance 1,24,000/-

As regards the maintenance charges of the pumping scheme, I have to mention the following:-

R. 5,000/- provision made against power charges is very modest. Taking the head and quantity of water pumped I feel that the power charges alone cannot be any^{thing} less than R. 7,000/- a year. The following details of maintenance cost on the pumping scheme are given:-

1) power with alum etc....	R. 7,500/-
2) Establishment...	R. 2,500/-
3) Repairs and renewals including depreciation of plant..	R. 1,500/-
Total...	R. 11,500/-

The difference in maintenance charges between the two schemes, if capitalised even at a minimum rate of 5% interest will increase the capital of the latter by R. 1,70,000/- over the and above the outlay of R. 1,26,425/- or, say, the total

the total cost of the pumping scheme would be roughly 3 lakhs rupees against one lakh rupees, for the gravitation. These figures lead me to conclude that the gravity proposal carried out on the above lines is the best for Chikmagalur Town.

The sand filters proposed are not meant to be constructed straight away but only after testing and making sure that they could not be done without. If found necessary, they could be added later on as necessity arises, keeping now in view the eventual arrangements to be made so that there may be no disturbance of supply at the time of extensions.

Now that a silting reservoir has been put up at Herekolale where water is likely to be settled down considerably there seems to be absolutely nothing left to fear about the pipes getting choked up particularly when a regular and systematic scouring of the pipe line is adopted as suggested by me previously.

^{any}
In case, I entirely agree with the Director of Health when he says that the distribution system requires cleaning up regularly, but this is a matter which has to be attended to year by year, and not once for all as is being done at present in Bangalore. A small sum may be set apart in the annual maintenance estimate and each section taken up one by one every year. There seems to be no reason for an immediate expenditure of Rs. 25,000/- to clean up all the pipe lines simultaneously. This will also relieve the Municipality of a heavy expense being undertaken all at once. I attach a greater importance to the necessity of Zoning the whole town into Districts and having proper mains and sub mains and controls so that there may not be continuous flow all through the day and in some quarters while other places suffer for lack of supply.

In any filtration system, rapid or slow sand, necessary that the turbidity should be brought down

low as possible before entry into the filters and no filters can work satisfactorily without proper sedimentation. If this is true for slow sand filters, it is equally true for rapid filters. Unless very large settling tanks are provided for in each case, alum is necessary. To avoid heavy expenditure on the construction of very large tanks, coagulating tanks of smaller capacity are put up, and alum has to be used to help coagulation. By adopting the coagulating system, the slow sand filter will equally give good supply of water and there will be absolutely no trouble whatever if the system is adopted.

In Tumkur, the want of adequate supply may not be due to the filters, ~~but~~ but to the insufficient quantity of water got from the tanks to the filter beds due to low head available. The proposed gravity system for Chikmagalur must not be condemned on a misleading comparison with that of Tumkur or Chintamani or Kadur because, as already stated, the conditions are quite different. For the successful working of the gravity system there must be sufficient head from the head works to the filter beds, and this Chikmagalur possesses. The conditions here being favourable, there is no reason why the ~~proposed~~ ^{proposed} scheme should not be adopted ~~practically~~ ^{practically} when cost considerations, as I make out, are also favourable.

Finally, I wish to state that I feel that unless the pumping scheme is carefully thought out and worked out in entire detail, ~~and~~ it will lead to endless trouble and Chikmagalur town now suffering from ~~very~~ insufficient supply may find itself during some ~~important~~ unfortunate periods of its life having no supply at all. Also, unless the site of the well is shifted and land in upper margin properly arranged to be guarded the town may be buying intestinal epidemics at great cost.

BIANCA

GOVERNMENT OF MYSORE

STATE DEPARTMENT OF HEALTH

Seshadri Road,

~~"GRACE VILLAGE, PALACE ROAD,~~

ARATHY LMS BSSc
LRCP & S DTM DPH
Director of Health

Telephone No 340

Telegram HEALTH

No C 1630-45

Encl 1/1

FROM

P. PARTHASARATHY Esq LMS BSSc LRCP & S DTM DPH

Director of Health with the Government of

His Highness the Maharaja of Mysore

Bangalore

To

The Secretary to Government,
Development Department, Bangalore.

SIR

I have the honour to forward herewith a re-modified estimate amounting to Rs 71,381/- together with a report for the improvement of water supply to Chickmagalur town, on account of rise in price of cast iron pipes from Rs 92/- to Rs.105/- per ton as intimated in letter No S 11009 dated 21-4-1937 of the Sales Manager, Mysore Iron Works, Bhadravati, (copy enclosed) I request you to be so good as to obtain and convey sanction of Government to the re-modified estimate.

I have the honour to be,
Sir,
Your most obedient servant,

O Bachi arney

Director of Health.

blys

Routine Notes

[To be used only for notes, requisitions etc, not intended for permanent record]

x (recast of
C-9 pipes from work)
to 16/7/37
MS 23/7/37
24/7

Personal class to be set up
knowing putting up the file in
question
for
16/7/37

The file is being
sent to the
16/7/37

NB—Should routine notes be written on small slips
the notes must be copied or slips pasted on this sheet

very
human
and

The file relating to the original
estimate has been put up for
D no^x 5814, which has been
submitted to the D Secy on 30-6-37
The return of that file may
will be awaited, if applied

MS
16/7

on 22 7 37
The file is being
into the class to accept the
then guided by the D Secy 2nd
works to be done and the
question of launching the revised
scheme for Rs 71,381 on 24 7 37

GOVERNMENT OF HIS HIGHNESS THE MAHARAJA OF MYSORE

General and Revenue Secretariat

No 2 1666

Dated. Bangalore, 18th August 1937

Eu 4

Val. 21.36 116

From:

The Secretary to the Government of His Highness the Maharaja of Mysore

Local Self Government Department

To

The Deputy Commissioner,
Kadur District.

Sir

In forwarding herewith copy of letter No. C.1630-45 dated 9th July 1937 together with its enclosures in original received from the Director of Health, forwarding a remodified estimate amounting to Rs.71,381/- as against the original sanctioned estimate for Rs.48,375 for the improvement of water supply in Chickmagalur Town as a result of the rise in the price of iron, I am directed to request you to be so good as to ascertain from the Chickmagalur Town Municipal Council as to how they propose meeting

Appendix F G—1]

SUBJECT

Diary No of letter replied to

General and Revenue Secretariat

()
the 193

Date of issue

Signed by

List of enclosures

Copied by

Examined by

Section MR
File No 81-36
Serial No 114

No 21666 / Quely

To

The Dy Commr, Kodur DT
- 2,

In forwarding herewith
copy of letter No E 1630-45
dated 9-7-37 together with
its enclosures in original
received from the Director of
Health forwarding a
remodified
~~assess~~ estimate amounting
to Rs 71,381 as against the
original sanctioned estimate
for the improvement of water supply in
for Rs 48,375, ^{Chetmagalur Taluk} as a result
of the rise in the price of
iron, I am directed to
request you to be so good
as to ascertain from the
Chetmagalur Taluk

The undersigned is very sorry to hear of your
illness and hopes you will be able to
return to your home soon.
Very truly yours,
Your obedient servant,

Wm. L. G. Brown
For Secretary to Government,
U.S. Department.

Appendix F G—1]

SUBJECT

Diary No of letter replied to

General and Revenue Secretariat

()
the 193

Date of issue

Signed by

List of enclosures

Copied by

Examined by

Section MR

File No 81-36

Serial No 114

No 21666 / July

To

The Dy Commr, Kodur DT

— Sir,

In forwarding herewith
copy of letter No E 1630-45
dated 9-7-37 together with
its enclosures in original
received from the Director of
Health forwarding a
revised estimate amounting
to Rs 71,381 as against the
original sanctioned estimate
for the improvement of water supply in
for Rs 48,375, as a result
of the rise in the price of
iron, I am directed to
request you to be so good
as to ascertain from Mr
Chakmagalur Jann Munnay

Committee as to how they

propose meeting the extra

cost due to rise in the price

of air.
The favor of a ³ ~~my~~ ^{house} ~~cost~~ ^{at} ~~supply's~~
request!

¹ ~~for~~ ^{for} ~~my~~ ^{my} ~~cost~~ ^{cost} ~~supply's~~ ^{supply's}
Room

D O No A.3. 457/37-38.

OFFICE OF THE DEPUTY COMMISSIONER,
KADUR DISTRICT

B S Raghavendra Rao, Esq, M A (Hons),
Offg. Deputy Commissioner

Chickmagalur, dated 24th August 1937.

LOCAL SELF GOVT
25 AUG 1937
GOVT

ar Sir,

With reference to your letter No. L-1886/MA. 81-36-114 dated the 13th August 37, regarding the water supply scheme of Chickmagalur Town, I write to state that the Sanitary Engineer visited Chickmagalur Town during the early part of this month when he suggested an alternate scheme of pumping water from the Yagachi and he was of opinion that the alternative scheme was advantageous from all points of view and at the same time equally efficient and could provide for an even greater quantity of water than the original scheme proposed. He wanted to discuss this informally with the Municipal Councillors and if they agreed to discuss the same with the general public. Accordingly he had informal conversation with the Municipal Councillors and as they were agreeable to this scheme, a meeting of the Municipal Councillors and the public of Chickmagalur was specially convened to discuss the various aspects and implications of the scheme proposed by him. The Sanitary Engineer and his Assistant, Mr. Ramaswamy, explained the proposals at the meeting and it was suggested by the Sanitary Engineer that if filtered water is pumped to the present storage tanks from a well sunk in the Yagachi stream, which was very near Chickmagalur there would be an appreciable savings in the cost of pipes and the two stages of the Water supply scheme now estimated at Rs 90,000/- (Revised estimate about Rs 1,12,000/-) would be reduced to about Rs 60,000/-. The opinion of the gathering was generally in favour of the revised scheme. The Sanitary Engineer thereupon promised to furnish detailed proposals for the formal approval of the Municipal Council.

It is presumed that the Sanitary Engineer has informally consulted Government also in the matter.

If the proposals now put up by the Sanitary Engineer are approved, the revision of the estimate consequent on the increased cost of pipes will not arise at all and in fact both the

Urge
25/8/37

W.D.S.

These are
attached
file

the parts of the old water supply scheme could once for all be taken up.

The formal proposals of the Sanitary Engineer are awaited and in these circumstances, I would like to know if the question of increased cost of the estimate on account of the rise in cost of pipes has to be placed before the Council.

I am sending a copy of this communication to the Sanitary Engineer also.

Yours sincerely,

M. N. S. S. S. S.

P. H. Krishna Rao, Esq., M.A.,
Secretary to the Government of
His Highness the Maharaja of Mysore,
Local Self Government Department, Bangalore.

Appendix F G—1]

SUBJECT

Diary No of letter replied to

General and Revenue Secretariat

the

Date of issue

Signed by

List of enclosures

Copied by

Examined by

Section *ML*

File No *81-36*

Serial No

No *22337*

To

Kadur
The A & ~~Chikmagalur~~ St
Chikmagalur
Sir,

With refce to your letter no A 3457/37-38 dated 24th Aug 1937, stating that the present Sanitary Engineer, Bureau of Sanitary Engineering has sug^g an alternative & more advantageous water supply scheme to ^{the} Chikmagalur town, than the present one under consideration, & soliciting orders of Govt whether ~~the~~ ^{the} detailed proposal, from the Sanitary Engineer in respect of his new scheme may be reviewed or further action taken regarding the question of meeting the ^{increased} cost of the Pipes in respect of the present estimate of the water supply scheme, I am

directed to state that the revised
proposals from the Sanitary Engineer
may be awarded

I have etc

^{27th}
For Secy to Govt
L S G. Dept.

Wk
27/8/37

Memorandum 2338/8 30-8-37
Copy up to the Secy to Govt
with the request that the submission
of revised proposals ^{on this behalf} may be ~~submitted~~
expedited.

^{27th}
In Secy to Govt
for

GOVERNMENT OF HIS HIGHNESS THE MAHARAJA OF MYSORE

General and Revenue Secretariat

No 2337/mul 81-36

Dated, Bangalore, ³⁰28th August 1937.

From

HH. Govt
5x30
The Secretary to the Government of His Highness the Maharaja of Mysore

Local-Self Government Department

To

The Deputy Commissioner,
Kadur District,
Chikmagalur.

Sir

With reference to your letter No.A.3.457/37-38 dated 24th August 1937, stating that the present Sanitary Engineer, Bureau of Sanitary Engineering, has suggested an alternative and more advantageous Water Supply Scheme to the Chikmagalur town, than the present one under consideration, and soliciting orders of Government whether the detailed proposals from the Sanitary Engineer in respect of his new scheme may be awaited or further action taken regarding the question of meeting the increased cost of the pipes in respect of the present estimate of the Water Supply Scheme, I am directed to state that the revised proposals from the Sanitary Engineer may be awaited.

I have the honour to be,

Sir,

Your most obedient servant,

Sd/- P.H.Krishna Rao,
Secretary to Government,
L.S.G.Department.

Memo No. 22338/mul-81-36

Dated, Bangalore, ³⁰28th August 1937

Copy of the above is forwarded with compliments to the Director of Health with the request that the submission of revised proposal on this behalf may be expedited.

By Order,

Mr. Jagan Mohan
For Secretary to Government.
L.S.G.Department.
Qu

MC 125-37 -

No.A3.457/37-38. Office of the Deputy Commissioner, Kadur District,
Chikmagalur, dated 29th October 1937.

From

B.S.Raghavendra Rao, Esquire, M.A., (Hons)
Offg. Deputy Commissioner,
Kadur District.



2240
17 NOV 1937

P.H. Krishna Rao, Esquire, M.A.,
Secretary to Government of Mysore,
Local Self Government Department,
B a n g a l o r e.

Sir,

Subject:- Water Supply Scheme to Chikmagalur Town.

With reference to your letter No.L.2337/Ml.81-36- dated 30th August 1937 stating that the revised proposals from the Sanitary Engineer may be awaited regarding the above subject, I have the honour to state that the Sanitary Engineer sent his proposals for an alternative scheme with an estimate for Rs 69,428/-. But as the members of the Municipal Council felt some doubts regarding this alternative scheme, the subject was discussed at a special meeting on 24th October 1937 at which the Sanitary Engineer and his Assistant were present. The Municipal Council has passed a resolution as per copy of the proceedings enclosed herein for reference.

Under these circumstances, orders of Government are solicited to sink a curb well at an estimated cost, not exceeding Rs 2,500/- to test the yield of the well from the point of view of the present and future requirements of the town and keeping the sanctioned scheme of duplicating the main in abeyance. If the results are found satisfactory, ^{an} alternative scheme proposed by the Sanitary Engineer will be taken up. The Sanitary Engineer is separately being addressed re: expediting this so that the work may be started by December in order to ensure the benefit of the water supply scheme to the town -
during

during the next summer only.

HSS
Y

I have the honour to be,

Sir,

Your most obedient

nas
29/11
Offg. Deputy Commissioner
By Kadur District.

M.N.B.

B.N.S. taramaiah, M.A.
President.

Messrs,				
3.	C. Veere Gowda	P	12. L.M.G. Vas	P
4.	T.C. Manjappa setty	P	13. A.N. Murthi Rao	P
5.	S.N. Ramanna, B.A.L.L.B.	P	14. B.N. Hanumanthappa	
6.	Bharath Naik	P	15. B.K. Narasimha Murthy	P
7.	N.G. Narayana setty	P	16. H.M. Rudrappa sastry	P
8.	D.C. Rudrappa	P	17. B.S. Nanjundiah	P
9.	T. Mariyappa setty	P	18. T. Abdul Wahab	
10.	A.R. Sheriff (Permission)		19. M. Manjanatha Rao	P
11.	C.M. Sheriff	P	20. Mrs. Sargent.	

[illegible]

Resolution :- While the Council resolved to sanction the sinking of a curb well at an estimated cost, not exceeding Rs 2500/- as an experiment and to keep the sanctioned scheme of duplicating the main in abeyance for the present, it expresses the opinion that though the first scheme has advantages of guaranteed supply, as it is tapped at the source and comparatively purer as it is drawn before being supplied for agricultural purposes and other advantages ~~to be~~ ^{like} cheaper cost of maintenance while it has not the disadvantages of curb wells yet this may be tried as the cost of iron and steel has abnormally risen in price.

sd/- B.N.Sitaramaiah
President.

Submitted to the Deputy Commissioner
Baden District for favor of information.

M. D. Hushman
for President.

Chikmagalur Municipality

tor

GOVERNMENT OF MYSORE

DEPARTMENT OF HEALTH

Immediate

SARATHY LMS BSSO
GP & S DPH DTM
Director of Health

SESHADRI ROAD,

Bangalore (S Indra) dated Nov. 8 1937

e No 340

HEALTH



Dear Mr Krishna Rao,

I am enclosing herewith a copy of the revised abstract estimate for improving water supply to Chickmagalur Town (Proposed new scheme).

Yours sincerely,

*Went to Mr Engr for
Review with original estimate
before today's meeting*

For
Director of Public Health.

9/11/37
Submitted for review of estimate
9/11/37

Supervisor

P H. Krishna Rao, Esq, M.A.,
Secretary to Government,
Local Self Government Department,
Bangalore.

Abstract estimate for improving water supply to Chickmagalur town (Proposed new scheme)

No.	Description of work	Cost
		Rs.
1.	Construction of a curb well of 15 ft. to 18 ft. diameter in the bed of Yagachi river.	2,500
2.	Construction of a Pump House to accommodate three pressure filters and a motor driven centrifugal pump and a Chlorinator.	4,000
3.	Cost of one motor driven pumping set having a capacity of pumping 15,000 gallons per hour against a total head of 160 ft. from all causes including cost of erection of the pumping set.	4,500
4.	Three pressure filters having a total filtering capacity of 15,000 gallons per hour.	23,000
5.	Erection of filters.	4,000
6.	Purchasing and laying 7" C.I. rising main 4,500' long from the Pump House to the previous existing slow sand filters.	10,500
7.	Converting the existing sand filters into service reservoirs.	2,000
3.	Improvement to distribution system	3,000
1).	Pipe connections to service reservoirs.	2,000
1).	Land compensation	1,000
	Repairs and renewals to existing valves etc.,	1,000
	Temporary establishment etc.	1,000
	Railway freight and cart hire	2,000
	Purchasing and installing one chlorinator	2,500
	Unforeseen charges	500
	Total	Rs. 63,500
	Contingencies at 5%	3,175
	Total	Rs. 66,675
	Establishment, tools and plant charges at 12½% on labour portion of the works about 22,000 at 12½%	2,750
	Grand total	Rs. 69,425

Sd/- N. Krishniengar,
Sanitary Engineer.

" Copy "

S. Sankaranarayanan

Director of Public Health.

Chikmagalur Water Supply Scheme

2240
2

General and Revenue
Secretariat

File No. 125

of 1937

[App F III-2]

Serial
No.

Letter No A 3 457/37-38 dated 29th Oct 1937
from the D & R Kadur Dt, reporting that the
Sanitary Engineer has forwarded an alternative
estimate for Rs 69,428/- for the Scheme of
water supply to Chikmagalur town, and showing
orders of Govt for the Proposal of the Chikmagalur
town M.C. to sink a Bore well at an estimated
cost not exceeding Rs 2500/- to test the yield from
the well & keeping the sanctioned scheme of
duplicating the main in abeyance
1. Supto for forward with refer to this office
letter No 1 2337 dated 30th Aug 1937, addressed
to the D & R Kadur Dt

2. It is not known from the P U D as to whether
the Govt or the M.C. should meet the
estimated cost of sinking ^{the} Bore-well
The estimate may perhaps be sanctioned
with the observation that the expenditure
involved, should be met from the M.C. funds.
3. It is also for orders if the D. of P. the M.C.
may be consulted un-officially

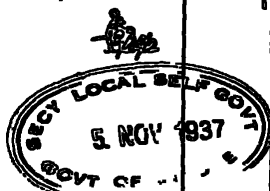
DSR for
3/11/37

Arvy (S)

2/11/37

4. The sinking of a Bore well at a cost
not exceeding Rs 2500/- for testing the yield of
water may be sanctioned. The cost being met-

~~Recommendation~~
~~as to the cost~~



NOTE—Contn. Sheet.

Checkership Com

2-1-1937
22/10

File No.

125

of 198

General and Revenue
Secretariat

entirely from the Funds

Franchise

6/11/37

SH-

9/11/37

OFFICE OF THE SECOND MEMBER OF COUNCIL. R - 1237 NO 3453

Serial
No

A NOTE ON CHICKMAGALUR TOWN WATER SUPPLY.

1. The existing scheme of water supply to the Chickmagalur town is by gravitation from the Hirekolale tank to the filter beds, with a net head of 100', in a distance of 24,400 feet i.e , a fall of 4' in 1000' Prior to the construction of this tank, water was being drawn into the 5" main through a small pick up weir The present small tank near Hirekolale was constructed about 5 years ago with a view to preventing silt being drawn into and choking the pipe and also for drawing a clearer water into the filters The water drawn from the surface of this tank is fairly clear and there is a storage depth of about 9 feet of water The discharge through an incrustated pipe of 5" diameter with a slope of 4 feet per 1000 feet is 1 06 lakhs of gallons per day This is about the quantity that the town is receiving through the existing 5" main The population of the town at present is about 13,000 and allowing 20 gallons per head per day, 2 6 lakhs of gallons are required So the deficit quantity is 1 6 lakhs of gallons, and allowing 25 gallons per head, for providing for future extensions, the quantity required is 3 25 -- lakhs gallons per day

2 For improving the water supply of the town one of the schemes proposed is to lay an additional main of 7" for the first half length and 6" for the other half and maintaining the existing filter beds

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No

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687/4/38

3 The second proposal is a pumping scheme from an infiltration well sunk in the bed of the Yagachi river on the Chickmagalur-Narasimharajapura road, the length of the main being 4000 feet. A test well 15' in diameter and 15' in depth has already been dug. The depth of water was observed to be 4 feet, at the time of my visit, and the pump depleted the well completely in half-an-hour. There are no springs and the inflow was very poor.

4. The stream here runs in heavy black-cotton soil. The well runs through this soil and lower down through soft decomposed schist. There are indications of slight shingle and sand in the bottom. Artificial infiltration gallery consisting of an open cut with 1' diameter open-jointed stone-ware pipes and jelly backing is being constructed from the stream bed to the well and pump. In the conditions here, the arrangements can by no means be called an 'infiltration well' and 'infiltration gallery'. Conditions here are quite unlike the conditions, for example, at Belur, Chennapatna, Closepet or T.Narasipur where true infiltration wells and galleries could be made. In Chickmagalur it is only a misnomer. Having regard to the conditions of the soil and the river here, the idea cannot be considered a happy one. It will not improve the water supply finally and will lead to unjustifiable waste.

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4. The most suitable line of action for improving the water supply of this town appears to me to be the immediate laying of an additional main of a suitable diameter. It is very desirable to keep the diameter of the duplicate main the same throughout its length. As the 7" diameter pipes have already been purchased, I would suggest these pipes being laid immediately for the whole length. The 7" pipe would give a discharge of 2½ lakhs and with 1 lakh of gallons available with the already existing 5" main, we will have 3½ lakhs gallons per day and it would be ample for future developments for many years to come.

5. An abandoned ^{irrigation} feeder channel on the Seetha-layanagiri is being restored and it is stated to be almost ready. The restoration of this feeder is an excellent idea and it will go far to meet the demand of both the water supply and irrigation of this valley. There is an idea that the tank bund of the present Hirekolale tank may be thickened and raised so as to allow some storage to tide over the dry months. But with the restoration of the feeder channel, it may not be necessary.

6. There are 3 sand filters which can supply 1.20 lakhs of gallons of water per day. To handle the extra supply of about 2 lakhs of gallons, I suggest that the old filter beds; now in disuse, which are

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are situated 750 feet away from the existing filters may again be brought into use to serve as settling tanks. Water should be settled in these tanks after admixture of alum. The clear water may be drawn off and chlorinated before being led into the distribution mains. In view of the purity of the natural water here, settlement only may be found sufficient. But if found necessary we can easily add filters suitably designed.

7. Above the Hirekolale tank there are some rice fields which are a source of contamination. These rice fields may be acquired and kept uncultivated. If possible the expropriated ryots here may be given lands below the old water supply reservoir.

8. I summarise below my recommendations which, if accepted, may be carried out in their sequence, as indicated -

(i) To lay the additional 7" main from the Hirekolale tank to the old filter beds, now in disuse, having also a connection with the existing filter beds. For economy, 7" Cement Hume pipes can be used at the beginning and the end of this main where the head is comparatively small. But there is no objection to have all cast iron pipes.

(ii) The portion of the new 7" main passing through the rice fields, to be laid immediately before rains start. Otherwise the duplication cannot be done till after the rains.

(iii) Completing the feeder channels on the Seethalayanagiri.

**PUBLIC WORKS
SECRETARIAT**

File No of 193

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No

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(iv) To bring the old disused filter beds into use as settling tanks

(v) Chlorinate the settled water, if necessary. If filtering is found necessary still, the sides of the old filters may be raised sufficiently, by 4 or 5 feet so as to give a head to lead the settled water into the existing filters by gravitation. Extra filter beds may be added as will be found necessary. The present sand filters are not correctly designed, there being no regulation of head. But the natural water is pure. The present filters make the water clearer in passing through them.

(vi) Improvement of the distribution system to be taken in hand. Here the condition seems to be that the distribution pipe runs, through the petta, which is situated along a ridge or backbone, and the distribution pipes on both sides fall rapidly into the valleys. Hence the main gets quickly depleted in the upper regions. Improvement would be possible for a more equitable distribution by introducing suitably designed bends at the commencement of the secondary pipes. Badly incrustated pipes to be cleaned and replaced. Wherever necessary larger pipes may also be laid.

(vii) Acquiring the rice fields above the Hirekolale tank for preventing contamination.

9 If there is a town ideally situated
for a satisfactory gravitation scheme of
water supply, it is Chickmagalur. Pumping here is
altogether out of place, especially when the river
bed is so unsuited for the infiltration of water.

9

SD
12/4/38

TSRN

NO. A3.457/37-38

Encls. 2 copies & 2 originals

OFFICE OF THE DEPUTY COMMISSIONER
KADUR DISTRICT

Dated Chikmagalur, 17th March 1938

12523701

FROM
B. S. RAGHAVENDRA RAO, Esq., M.A. (Hons.),
Offg. Deputy Commissioner, Kadur District.

To

P. H. Krishna Rao, Esquire, M.A.,

Secretary to Government of
His Highness the Maharaja of Mysore,
Local Self Government Department,
Bangalore.

Sir,

I have the honour to forward herewith a copy of letter received from the President, Municipal Council, re: the water supply to this town. In his letter No.3457 dated 5th March 1938 the Sanitary Engineer sent a note (copy enclosed) to the Municipal Council giving the merits and demerits of the sewerage alternative schemes that have been proposed for this town. The Municipal Council appears to have discussed this matter in detail on 14/15th March 1938 and have passed a resolution that the second alternative (pages 3 and 4 of the note) proposed by the Sanitary Engineer may be adopted deleting items 2 and 3 referred to therein.

2. According to the present resolution of the Municipal Council the following items are to be taken up :-

1. Laying duplicate 6" main from Hirekolale tank to slow sand filters. - Rs 70,000/-

2. Repairing and renewing the existing three sand filters, valve cisterns etc. - Rs 11,520/-

In addition to this, the Municipal Council also proposed to take up immediately suitable improvements to the distribution system as proposed by the Sanitary Engineer. The Sanitary Engineer has sent up for this an estimate for Rs 24,795/- and assuming that at least about 19,000/- rupees is necessary for this work, the total cost of the scheme as approved by the Municipal Council would go up to about 1 lakh of rupees. The Municipal Council have not in their present resolution discussed the financial implications of their proposals.

proposals and have not suggested how they propose to meet the expenditure.

M In Government Order No. L. 64069/Ml. 74-35-11 dated 3/4th March 1937 sanctioning the first stage of the scheme of water supply to the town as per estimate prepared by then Sanitary Engineer at a cost of - Rs 48,375/- Rs 10,000/- was to be given as Government grant and - Rs 35,000/- was to be met from the loan to be sanctioned from Government at 4½% being repayable in 15 years. As the cost of the present scheme would go up to one lakh, the question of finding the necessary funds has just to be settled .

3 In this connection in order to represent their views for selecting this scheme and for finding out ways and means of meeting the cost so as to facilitate the taking up of this scheme the Council appears to have resolved to wait upon the Second Member of Council and the President has written to me in his letter No. H.C. 30/37-38 requesting that an interview for this deputation may kindly be - arranged. I have accordingly submitted these papers for your kindly obtaining early orders re: the deputation since the present resolution of the Council for taking up the scheme as proposed by them is not complete as the most important point viz., the question of - finance having been omitted therefrom.

I have the honour to be,

Sir,

Your most obedient servant,

T. M. S. S. S.
Assistant Commissioner,
For Deputy Commissioner,
Kadur District.
(Absent from Head Quarters).

M.N.S.

S

Letter No.H.C.30/37-38 dated 16th March 1938 from the President, Town Municipal Council, Chikmagalur, to the Deputy Commissioner, Kadur District, Chikmagalur.

In submitting herewith a copy of the resolution of the Municipal Council meeting held on 15th March 1938 regarding the water supply scheme to be taken up in this Municipality, I have the honour to state as follows:-

The Council desire to take up the II Scheme suggested by the Sanitary Engineer in his letter dated 4th March 1938 with the following alterations.

It is proposed not to take up item No.2 of this scheme viz., construction of a silting tank as a silting reservoir with sufficient capacity for arresting silt has already been constructed at the Head Works and arrangements made to skim the top layer of water which is devoid of silt. (vide report accompanying letter No.2834 dated 10-5-35 from the Sanitary Engineer. Extract enclosed).

Similarly it is not thought necessary to construct an additional slow sand filter (item 3) as at present there are only two sand filters working and the 3rd one when repaired and put into use will serve the purpose.

Regarding item No.4 the Council want to have the existing sand filter which is in disuse overhauled and the two others also repaired so that they may be capable of receiving the additional supply of water.

The Council are not in favour of the I scheme on account of its heavy cost nor are they in favour of the 3rd and 4th schemes, i.e., augmenting the present supply from the kerb well, for the following reasons.

The Sanitary Engineer in his letter No.1025 dated 9th September 1937 to the Deputy Commissioner, Kadur District, proposed to sink a well in the bed of the Yagachi river and test the quality and quantity of water before the scheme was taken up. After the completion of the well an engine was fitted up and water pumped out from the well. When the members of the Council tested it, it was observed that there was not enough under-current water and consequently the well by itself was considered to be a failure in as much as it has to depend for its supply mainly on the river water led into it and that at the river level.

Regarding the quality of the water in the well the Sanitary Engineer was of opinion that its water was almost pure and that after mere chlorination, the supply could be given to the town even without the installation of pressure filters if the Council thought of saving Rs 23,000/-, the cost of pressure filters out of the estimate of Rs 68,000/-. If this could be done and the water is as good as all that there is every reason to believe that the water drawn at the Hirekolale tank is purer than that of the kerb well which is at a distance of about 4 miles down and below it and water is tampered with right through for cultivation and other purposes.

Hence it is considered that in the scheme adopted the question of installation of pressure filters will not arise at all since it is proposed to provide for the installation of a candy's chlorinator for sterilizing the water before the supply is given to the town.

For this scheme the annual maintenance charges is estimated at Rs 9,500/- taking into account a sum of Rs 6000/- for the annual cleaning of half a mile length of pipe line of each of the two mains between the Hirekolale tank and the slow sand filters. The Sanitary Engineer is of opinion that by duplicating the main by putting 7" and 6" pipes, the supply by gravity system alone would be 300 gallons per minute or 432000 per day. At present we are getting about one lakh of gallons every day from the existing pipe line and that is said to be the quantity got from the beginning, though we ought to expect atleast 2 lakhs per day. (Vide Sanitary Engineer's letter

letter dated 4-3-1938). If in the new line also, water is supplied into the town, a supply of not less than 3 lakhs of gallons per day would be ensured even though the old pipe line is presumed to have been encrusted and a quantity even a little less, is more than ample for the town at present. As there is the silting reservoir at Hirekolale the probability of the new line also getting encrusted - and the estimated bulk of supply reduced, is very remote and the Councillors are of opinion for these reasons, that for some years to come and until after the entire loan raised for this purpose is repaid with interest thereon, this item of work might be safely postponed when the old pipe line may be taken up for cleaning in bits as suggested.

The Council also want that the immediate suitable improvements to the distribution system as proposed by the Sanitary Engineer may also be taken up immediately.

The Council have also resolved to wait upon the II Member of Council to represent their views for selecting this scheme and for finding out the ways and means of meeting the cost of the scheme, so as to facilitate the taking up of the schemes early.

I request that sanction of Government may kindly be obtained for taking up the scheme at an early date.

" C o p y "


Assistant Commissioner,
For Deputy Commissioner.
Kadur District.
(Absent from Head - Quarters).

M.N.S.



Letter No. 3451 dated 4/5th March 1938 from the Sanitary Engineer to Government, Bangalore, to the President, City Municipal Council, Chikmagalur.

===

Improvement of Chikmagalur Water Supply.
=====

Referring to the above, I have the honour to invite your kind reference to the fact that the question of working out the improvement scheme was postponed pending the sinking of a curb well in the bed of the Yegachi river near Chikmagalur town and testing the yield of the well.

I am now in a position to state that the curb well is sunk in the bed of the Yegachi river and the yield of the well was tested with a suitable oil engine and pump for a few days and it was observed that there is enough water available in the Yegachi river for meeting the demand of the town of Chikmagalur. The existing engine and pump was kept running for about 12 hours in the day and the pump was working out water from the well at the rate of between 15,000 and 18,000 gallons an hour. During pumping, it was observed that the level of the water in the well went down by only 6 inches from the level at start and the well was able to maintain its level of 8 1/2 feet of water throughout, without any sign of lessening. Under the circumstances, I wish to say that the test of the well was found to be very satisfactory and that we can depend on the Yegachi river to give all the required supply of water for the town of Chikmagalur. Since the test was conducted at the worst part of the year, I can confidently say that we can safely depend on the river for water supply of the town. In this connection, I wish to recapitulate once again, briefly, the cost of the several schemes thought of, for the improvement of water supply to Chikmagalur town together with the recurring charges pertaining to each scheme so that the Municipal Council may consider the question in detail from all points of view and come to a definite decision regarding the particular scheme to be taken up for execution.

Before proceeding further, I may say that further work on the sinking of well in the Yegachi river bed has been stopped as the purpose for which the well work was taken up has been accomplished. Until the Municipal Council and the Government decide definitely upon the future line of action, further work will be suspended. I would therefore request you to come to an early decision on the question of the improvement of water supply to Chikmagalur town.

There are four alternative schemes which have been under consideration for the past few months ever since the improvement of water supply to Chikmagalur town was seriously taken up for consideration.

A. The first scheme which was estimated at Rs 90,000/- and subsequently revised to Rs 1,20,000/- on account of the rise in prices of iron materials, consists of laying a duplicate main from Hirekolale tank to the existing slow sand filters and installing two pressure filters of an aggregate capacity of 10,000 gallons per hour, conversion of the existing slow sand filters into settling tanks, construction of a suitable service reservoir and filter house and installing the required motor and pump for working the pressure filters. The total cost of the above was estimated at Rs 1,20,000/- in revision.

The above scheme involves a heavy cost of maintenance taking into ~~more~~ account the proper upkeep of the several component parts of the system. For instance, the two mains which will convey water from the Hirekolale tank to the slow sand filters should be maintained in an efficient condition. Experience with the existing 5" main between Hirekolale tank and the slow sand filters has shown that the pipe line has got incrustated very heavily owing to the conveying of raw water which is very highly turbid particularly during the monsoon season from Hirekolale tank to the slow sand filters, so much so that, though the static difference of level between the Hirekolale tank and the slow sand filters, is 170 ft., the discharge from the 5" main at present is hardly equivalent to a discharge through a 3" main. The total quantity of water which is now estimated to be flowing into the slow sand filters is only about 100,000 gallons though we

we ought to easily expect atleast 200000 gallons in the course of twentyfour hours. If this 5" main had been kept in a clean condition by taking up the cleaning of the line in bits, year after year, from one end to the other, the present trouble due to incrustation would have been considerably minimised.

Similar incrustation of pipe is observed in the 9" C.I. main conveying raw water from the Mydala tank to the slow sand filters of Munkur water supply through a distance of about 5 miles. A few years ago, a 10 H.P. motor driven pump was installed to boost up the pressure in the main at the outlet of the tank as the available head was found to be insufficient to overcome the frictional resistance due to heavy incrustation and deliver the required quantity of raw water at the slow sand filters. Since the installation of the pumping set, further incrustation has taken place and it is now found that the 10 H.P. motor should be replaced by a 15 H.P. motor to overcome the increased frictional resistance.

The cast iron pipe line of Khalasa water supply leading water directly from the tank to the town for distribution is another instance of heavy incrustation. Since the cleaning of the pipe line was neglected, it is now observed to be very heavily incrustated and in course of time, it will get completely choked up. Hence it is very necessary to maintain the C.I. pipe line between Hirekolale tank and the slow sand filters by regular cleaning, the cost of which will form part of recurring maintenance expenses. It may be necessary that half mile of the pipe length is taken up for cleaning every year so that at the end of nine years, the whole line would have been completely cleaned once and the same process repeated.

Similarly with regard to the maintenance of the slow and filters, frequent scraping of the sand on the surface, reeking it when the filter is deeply clogged, washing the sand and restoring the level of sand in the filters at periodical intervals, all these have to be done regularly with a permanent staff under the supervision of a competent well trained subordinate staff of the Engineering Department. Further, cleaning and washing of the whole sand of each filter once in two or three years and washing and replacing the graded gravel if necessary, have also to be done. The level of sand in each filter should be maintained at its correct level by replacing the rejected sand by fresh stock of the correct grade of sand.

If it is not regularly and carefully done as pointed above, the filters will be damaged and all the troubles due to deep clogging and inefficient filtration will be the result.

Coming to the maintenance charges of this scheme, we find that it comes to Rs 13,500/- a year as per details noted below:-

1. Annual cleaning of half a mile length of pipe line of each of the two pipe lines viz., 5" and 6" between Hirekolale tank and filter premises which include the cost of removing pipe, scraping and cleaning, painting and relaying with lead joints. 6,000/-

2. Power and alum charges for supply 150,000 - gallons per day of filtered water to the Chikmagalur Town. 4,000/-

3. Establishment charges. 2,500/-

4. Other charges - repairs, renewals of filters, motor, pumps etc., waste - grease etc. 1,000/-

Total:- 13,500/-

B. The second alternative scheme which was considered is as follows:-

Laying duplicate main from Hirekolale tank as in the above scheme and filtering the water through the slow sand filters by reconditioning the existing slow sand filters and constructing in addition, a settling tank and one more sand filter, the initial cost of which has been estimated as follows :-

1. Laying duplicate 6" main from Hirekolale tank to slow sand filters.	70,000
2. Construction of settling tank of half a million gallon capacity in two compartments at a suitable spot above the same filters	30,000
3 Construction of one additional slow sand filter of the same capacity as the existing ones.	12,530
4. Repairing and renewing the existing three sand filters, valve cisterns etc ,	11,520
Total -	1,24,050

In this scheme, the proposal of settling the water with the help of a settling tank will be very efficient no doubt, provided sufficient alum is added to the raw water before allowing it for settlement. This addition of alum is particularly necessary during the monsoon season which lasts nearly six months in the year. Without the addition of alum, the large quantity of colloidal matter which is held in suspension in the raw water cannot be easily removed.

But it is common practice, that where filtration is done with the aid of slow sand filters, alum is not added generally, as it will give rise to deep clogging of the sand filter very soon, and impair the efficient working of the slow sand filter.

Considering the maintenance charges, of the above alternative scheme, we find that it works out to Rs 9,500/- a year, the details of which are as follows -

1 Annual cleaning of half a mile length of pipe line of each of the two mains between Hirekolale tank and slow sand filters as in Scheme A	6,000
2 Repairs and renewals involved in the maintenance of slow sand filters, settling tanks etc ,	1,000
3 Establishment charges	2,500
Total -	Rs 9,500

Rupees nine thousand five hundred

C A third alternative scheme was suggested by this office recently, the detailed initial cost of which was estimated at Rs 68,000/- This scheme involved the pumping of water from the Yegachi river bed by sinking a well in it at a point close to the town and far removed from the field of pollution. The water obtained in the curb well is proposed to be filtered with the help of three pressure filters and the filtered water pumped to the existing service reservoir through a 6" main of 4500 ft long. The scheme includes the installation of 3 filters having a total capacity of 15,000 gallons an hour and suitable electric motor and pump. The initial cost of the above scheme is Rs 68,000/-

Maintenance charges-

1. Power charges for pumping 150,000 gallons of pure filtered water per day including cost of alum etc.	Rs 5,000/-
2. Establishment charges.	2,000/-
3. Repairs and renewals, filters motor pump etc.,	1,000/-
	=====
Total:	Rs 8,000/-
	=====

D. A fourth alternative scheme was suggested with a view to reduce the power charges involved in the above scheme as far as possible. According to this scheme, we will have the three filters, curb well in the bed of the river, a motor, pump etc., all worked out as in the above scheme at a cost of Rs 68,000/-, But in actual working, we will operate the machinery only for a few hours in the day so that half the total quantity of water required for the town viz., 75,000 gallons will be supplied from this curb well while the other half will be served by the existing slow sand filters as is being done now. This involves the ~~reconditioning~~ reconditioning of the three existing slow sand filters at an initial cost of Rs 11,520/- as in scheme B.

Thus the total initial cost will be:-

Installation of three pressure filters motor pump etc., as in Scheme C.	68000/-
Reconditioning the existing three slow sand filters.	11520/-
	=====
Total:-	Rs 79520/-
	=====

This method of supplying water will no doubt reduce the power charges to one half of what it will be in the third scheme suggested above. But we must take into consideration, the maintenance of the existing 5" line between Hirekolale tank and the slow sand filters and also the extra establishment charges required for the two schemes and lastly the maintenance of the slow sand filters in addition to rapid sand filters. Considering all the above the total cost of maintenance will come in this case to Rs 9,200/-

1. Cleaning existing 5" line half a mile long every year.	Rs 2000/-
2. Power charges including alum etc., for pumping 75,000 gallons per day, being one half of the charges of scheme C.	2500/-
3. Establishment charges for both the slow sand filters and the rapid sand filters.	3000/-
4. Repairing and renewing the slow sand filters, etc.	1000/-
5. Repairing and renewing the pressure filters, motor, pumps etc.	700/-
	=====
Total:-	Rs 9200/-
	=====

The following is an abstract of cost of the four schemes mentioned above.

P.T.O.

Scheme	Initial cost of scheme	Recurring maintenance cost of scheme.
A	Rs 1,20,000	Rs 13,500
B	1,24,050	9,500
C	68,000	8,000
D	79,520	9,200

The above four schemes will have to be considered in detail and the one which is most economical from the point of view of initial cost and maintenance charges will have to be chosen.

One other point which has to be considered is the overhauling of the distribution system of Chikmagalur town. It has been found by actually cutting open the distribution main in some places of the town that the main is heavily choked up with silt and its capacity is considerably reduced so that the water is not properly conveyed from the service Reservoir and distributed to the town. An estimate was prepared for thoroughly cleaning and painting and relaying the distribution system with improvements to the same and it was found to cost Rs 24,000/- The same has been forwarded to the Municipality already for their consideration.

Whatever may be the improvement scheme that may be adopted this estimate of Rs 24,000/- has to be considered and taken into account along with the initial cost and it will be an additional capital expenditure over and above the figures given in the abstract statement given above.

I would now request you ~~xxx~~ to give your due consideration to the above schemes and decide upon one of them at an early date to enable us to obtain orders of Government in the matter of taking up the work for execution.

" C o p y "

Thirupavai
Assistant Commissioner,
~~For~~ Deputy Commissioner,
Kadur District
(Absent from the quarters).

S

M N S

Proceedings of the Meeting of the Chikmagalur Town
Municipal Council, Convened on Tuesday the 15th March 1938 at 9 A M
in the Sree Narasimharaja Wadiyar Town Hall, Chikmagalur

X X X

Subject : ಬೆಂಗಳೂರು ನಗರ ಸ್ವಚ್ಛತೆ ಸಮಿತಿ 9 ವರ್ಷಗಳ ವಿಸ್ತರಣೆ
ಮಾಡುವ ಕುರಿತು 4-3 ಅಂಶಗಳನ್ನು ನಿರ್ದೇಶಿಸಿರುವ
ಆದೇಶದ ಅನ್ವಯದಲ್ಲಿ ಕೆಳಕಂಡ ವಿಷಯವನ್ನು
ವಿವರಿಸಿ ಕೊಡುವ ಕುರಿತು

Resolution After examining the merits of the four
alternative schemes presented in the matter, by the Sanita-
ry Engineer, from the view point of sufficiency of pure
water-supply and economic working, the Council is of opinion
to adopt the laying of a duplicate main of 7" and 6" from
Hirekolale silting Reservoir, to the present filters as
by this means an unfailing quantity of uncontaminated
water is tapped almost at the source without affecting the
rights of the agriculturists, which advantages the kerb
well was found to be lacking, as there was no ~~per~~ perco-
lation or under-current in it.

With a view to facilitate the taking up of
the scheme at a very early date, it was resolved, that a
deputation consisting of the following members namely
messrs S.N. Ramanna, B N. Hanumanthappa, D.C. Rudrappa, A N
Murthy Rao, B.K. Narasimha Murthy and C Veere Gowda, to
wait upon the II Member of Council

sd/- B N Sitaramaiah
President

" True Copy "

B. N. Sitaramaiah
President
Town Municipal Council,
Chikmagalur

128

Extract of para 2 of the report accompanying Sanitary Engineer's letter No 2834 dated 10-5-35.

X X X X

Water to the town was being till now drawn directly from a perennial halla coming from the Baba-Budan hills. A small wall across the halla was constructed about 4 feet above the bed of the halla and was diverted into an intake cistern through a masonry duct. The draw off pipe 6" in diameter was fixed just about a foot from the bed of the cistern. As plenty of silt was being brought in by this halla every year, the pipe line was being gradually choked up with silt and in addition the filters also necessitating the cleaning of the filters very frequently. To avoid this worry and inconvenience a silting reservoir with sufficient capacity for arresting silt was just constructed and arrangement has been made to skim the top layer of ~~water~~ water which is devoid of silt. This will prevent the silting up of the pipes to a considerable extent

" True Copy "


President
Town Municipal Council,
Chikmagalur

ppendix F G—1]

UBJECT

Diary No of letter replied to

General and Revenue Secretariat

()
the 193

Date of issue 28-3 38

Signed by *Am M S H*

List of enclosures

Copied by

Examined by

Section *ML*

File No *125-37.*

Serial No *2*

No *L7994*

To

*The D C Kadur Sh
Chikmagalur*

Sir,

In reply to your letter no A3457/
37-38 dated 17th March 1938,
reporting that certain councillors
of the Chikmagalur town ML cl
desire to wait upon the Second
Member of Council to discuss
matters connected with the
water supply scheme to Chikmagalur
town and requesting ^{order of the} ~~to be~~
~~in the matter.~~
~~informed approval to the said~~
~~deputation.~~ I am directed to
state that the ^{question} ~~matter~~ will be
examined by the technical
depts concerned ^{in the first instance} to no object

Will be served by the Municipal
Councillors discussing the matter with Govt
at this stage.

I have etc.

For
20/3
Secy to Govt
L. S. G. Dept
Don
for

Memo no: _____

- Copy of the above is for W.C.
- 1) The Secy of P. H. for information
 - 2) The Chief Engineer for information

B. O.

25/1-
For Secy to Govt
L. S. G. Dept
Don

No. 13.457/37-38.
Incls. 2.

OFFICE OF THE DEPUTY COMMISSIONER
KADUR DISTRICT

Dated Chikmagalur, 14th. J u l y 1938

LOCAL
6 J u l y 1938
To
16/7/38

1125-37

S. RAGHAVENDRA RAO, Esq., M A (HONS.),
Deputy Commissioner, Kadur District

P. H. KRISHNA RAO, Esquire, M.A.,
Secretary to Government of
His Highness the Maharaja of Mysore,
Local Self-Government Department,
Bangalore.

Sir,

I have the honour to forward for favour of information of Government a copy of letter No.H.C.30/37-38 dated the 10th June 1938 received from the President, Town Municipal Council, Chikmagalur, together with a resolution dated 5th June 1938 of the Municipal Council stating that the estimate for Rs.11,250/- in connection with the - temporary arrangements for improving the water supply to the Town -- need not be taken up and that sanction of Government may be obtained early to take up at once the permanent scheme of duplication of mains. The Municipal Council pray that the Scheme be taken up early and completed before the end of December, 38

I have the honour to be,
Sir,
Your most obedient servant,

S. Raghavendra Rao
Deputy Commissioner,
Kadur District. 14/7

dl/-

No. 13.457/7-38.
Incls: 2.

OFFICE OF THE DEPUTY COMMISSIONER
KADUR DISTRICT

Dated Chikmagalur, 14th. J u l y 1938

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To
16/7/

B. S. RAGHAVENDRA RAO, Esq., M.A. (Hons.),
Deputy Commissioner, Kadur District

1125-37

P. H. KRISHNA RAO, Esquire, M.A.,
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I have the honour to be,
Sir,
Your most obedient servant,

B. S. Raghavendra Rao
Deputy Commissioner,
Kadur District. 14/7

HE/-

Copy of letter No.H.O.30/37-38 dated 10th June 1938 from the President, Municipal Council, Chikmagalur, to the Deputy Commissioner, Kadur District, Chikmagalur.

In submitting herewith the papers relating to the temporary arrangements to be made for improving the water supply of the Chikmagalur town at an estimated cost of Rs.11,250/- I have the honour to state as follows:-

The estimate received from the Director of Public Health was placed before the Council for approval. The question relating to the temporary arrangements for additional water supply was discussed at full length by the members and it was resolved that there was no necessity to take up the temporary scheme at present and that the permanent scheme relating to the duplication of main from Hirekolale should be arranged to be taken up immediately and got completed -- before the end of December 1938.

In view of the fact that it will be very difficult to tide over the question of adequate supply of water during the summer months of next year, I request that early sanction of Government may kindly be obtained for putting up the permanent scheme on hand so that no difficulty may be experienced in the next summer.

A copy of the resolution dated 5th June 1938 is also enclosed for favour of kind perusal.

" C o p y "



Deputy Commissioner,
Kadur District.

~

BE/-

gupta *ab* - 7.
**PROCEEDINGS OF THE GOVERNMENT OF HIS HIGHNESS
THE MAHARAJA OF MYSORE.**

Read:-

Rel 125-37-6

'M' Government Order No. L. 6406-9/M1.

74-35-11 dated 3rd/4th March 1937, sanctioning the 1st stage of the Chickmagalur Town Water Supply Improvement Scheme at an estimated cost of Rs.48,375/-, the expenditure being met by a Government grant of Rs.10,000/ and a loan of Rs.35,000/- sanctioned to the Municipality for meeting its quota of the cost, subject to its repayment in fifteen annual equated instalments carrying interest at 4½% per annum.

2. Correspondence ending with letter No. A3.437/37-38, dated 14th July 1938 from the Deputy Commissioner, Kadur District on the question of improvement of Chickmagalur Town Water Supply.

3. Correspondence ending with unofficial note No. 41 dated 20th July 1938 from the Chief Engineer of Mysore in the matter.

Order No. L 3021-4

Dated, Bangalore, the 15/10/38

1. Laying 7" C.I. Pipe line from Herekolale to the settling tank ..	Rs. 60,000
2. Making use of old service reservoir as settling and coagulating tank	8,000
3. Construction of an efficient coagulating tank at the head works	6,000
4. One Chlorinator ..	2,500
5. Distribution Improvements ..	1,500

First stage total 78,000

On a careful consideration of the several schemes suggested for improving the system of water supply to Chickmagalur Town, Government are of opinion that the balance of advantage lies in improving the existing gravitation scheme. The first stage of the improvement, which is expected to cost Rs.78,000/-, as noted in the margin, is sanctioned. The Chief Engineer is requested

2.

to obtain and forward detailed estimates very early. The work should be started with the least possible delay.

2. In modification of the Government Order dated 4th March 1937, the Government grant is raised to Rs.39,000/- and the balance will be treated as a loan to the Municipality, ^{to be repaid} repayable on the same terms as laid down in the Government Order read above.

3. A demand for the amount of the Government ^{grant} ~~order~~ will be placed before the next session of the Legislative Council.

4. Government also direct that, in the circumstances of the case, the work may be executed by the Executive Engineer, Public Works Department, Kadur Division

Jm
1938

Secretary to Government,
Local Self-Government Department

To

The Deputy Commissioner, Kadur District
" Chief Engineer of Mysore.
" Director of Public Health in Mysore.
" Comptroller to Government through
Financial Secretariat.

GENERAL AND REVENUE SECRETARIAT

D. O. No. L 3025/m-1253 -> Dated, Bangalore. 15th October 1938.

Dear Sir,

In continuation of Government Order No.
L 3021-4/m-1253 -> Re: Chickmagalur Water Supply
15/10/38 Scheme, I am desirous to state that Government --
direct that in all engineering matters, the Sanitary Engineer should work under the guidance and orders of the Chief Engineer and that the Director of Public Health should be guided entirely by the advice of the Chief Engineer.

Yours sincerely,

Sd. P.H. Krishna Rao,

P. Parthasarathi Esq , L M.S., B S.Sc., (Med)
Director of Public Health in Mysore,

B a n g a l o r e.

P.T.O.

MEMO No. 12924

Bangalore, dated the 18th October '53.

Copy of the foregoing is forwarded with compliments
to the Chief Engineer of Mysore, for information.

By Order,


For Secretary to Government,
L.S.G. Department.

3 copies - 2 to be for a/c of
D.O. No. 3021-4/12/28-37-7
15.10.34

To

The Director of Public Health
in Mysore,
Bangalore.

Dear Sir,

In continuation of Govt. Order
No. 3021-4/12/28-37-7 re: Chickmagalur
Water Supply Scheme, I am desired to
state that Government direct that in all
engineering matters, the Sanitary
Engineer should work under the guidance
and orders of the Chief Engineer and
that the Director of Public Health should
be guided entirely by the advice of the
Chief Engineer ~~in these technical matters~~

Yours sincerely,

[Signature]
30835

Indd -
Approved by the Secy
A

9/11/34

C.

Memo no
copy of the
Chief Engr's for info.

[Signature]
In secy to Govt
for 10/11/34